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Archives of Dermatology and Syphilology

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BOWEN'S DISEASE AND PAGET'S DISEASE OF THE NIPPLE

THEIR RELATION TO DYSKERATOSIS *

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NEW YORK

The term dyskeratosis, as defined by Darier,[1] "represents a faulty development of the epidermis in the course of which a certain number of malpighian cells become isolated and differentiated from their fellows, undergoing an abnormal, premature and imperfect keratinization. These dyskeratotic cells are present in the layers of the epidermis, as far as in the horny layer, in the form of 'round bodies' (corps ronds), granules (grains), globes or corpuscles, with or without nuclei, easily distinguished from the still normal cells as well as from the parakeratotic cells."

In 1914, Darier [1] designated a group of dermatoses under the general heading of "the dyskeratoses." The classification was based on the assumption that the primary and characteristic histologic feature of the lesion in these diseases was dyskeratosis. The diseases classified as belonging to the group are:

1. Bowen's precancerous dermatosis.
2. Paget's disease of the nipple.
3. Dyskeratosis follicularis (Darier's disease).
4. Molluscum contagiosum.

In the present article, clinical and histologic evidence will be adduced to show that numbers 1 and 2 should be removed from the group, by reason of the fact that the primary lesion in these diseases is not a disorder of keratinization. The lesion in Bowen's disease is a disturbance of epithelial growth which properly should be classed among the primary malignant tumors of the epiderm. Paget's disease of the nipple is a metastasis in the epidermis from a duct cancer or possibly

* Read at the Fifty-first Annual Meeting of the American Dermatological Association, Washington, D. C., April 30 to May 3, 1928.

1. Darier, J.: La dermatose precancereuse de Bowen, Ann. de dermat. et syph. **5**:449, 1914-1915.

the expression of multiple primary neoplastic growth. Dyskeratosis follicularis (Darier's disease) and molluscum contagiosum, on the other hand, are not neoplastic diseases.

BOWEN'S DISEASE

In 1912, Bowen [2] published a report of two cases of atypical epithelial proliferation which he termed a precancerous dermatosis. Darier [1] was the next to observe the condition and reported three new cases in 1914. In 1920, he reported another case,[3] and at the same time referred to four cases which have not been published. In 1915, Bowen [4] reported an additional case in which, though apparently cured, the patient developed a cancer of the pylorus two years later—a circumstance which was probably not related to the primary disease. Since then, cases have been reported by Highman,[5] Morrow and Lee,[6] Mount,[7] Sequeira and Turnbull,[8] Delbanco [9] and others.

Darier [1] described two clinical types: (1) the lenticular or discoid papules, and (2) the nonelevated scaly or crusted plaques. In the first type the initial lesion is usually a papule (Bowen's description [2]). The papules are sometimes plain, with a central depression, or they may be villous or papillomatous. They have a tendency to become confluent, and form papulolenticular, papulonummular plaques, which may be covered with crusts, or with firm, grayish, adherent scales.

In the second clinical type, the lesions consist of rose, fawn or brownish, rounded or irregular patches which are sharply defined but which are not elevated above the healthy skin. The surface of the lesions is scaly and sometimes presents an atrophic or parquet aspect (Darier, case 2). The disease may occur in the young or old, and both sexes are equally affected. The lesions are usually multiple and distributed on the trunk, on the limbs and occasionally on the face (Morrow and Lee's

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2. Bowen, J. T.: Precancerous Dermatoses: A Study of Two Cases of Chronic Atypical Epithelial Proliferation, J. Cutan. Dis. **30**:241 (May) 1912.

3. Darier, J.: Le cancer de la dermatose precancereuse de Bowen, Ann. de dermat. et syph. **1**:49, 1920.

4. Bowen, J. T.: Precancerous Dermatoses: A Sixth Case of a Type Recently Described, J. Cutan. Dis. **33**:787 (Dec.) 1915.

5. Highman, W. J.: Precancerous Dermatose, J. Cancer. Research **1**:343 (July) 1919.

6. Morrow, H., and Lee, A. W.: Two cases of the Bowen Type of Epithelioma, J. Cutan. Dis. **36**:1 (Jan.) 1918.

7. Mount, L. B.: The Bowen Type of Epithelioma, Arch. Dermat. & Syph. **4**:769 (Dec.) 1921.

8. Sequeira, J. H., and Turnbull, H.: Multiple Carcinoma of the Skin: Precancerous Dermatosis of Bowen, Brit. J. Dermat. & Syph. **35**:173 and 211 (May-June) 1921.

9. Delbanco, Ernst: Zur. Bowenschen Krankheit, Dermat. Ztschr. **45**:134 (Oct.) 1925.

case, and Darier's case 2). There is no tendency to symmetry; more or less hyperkeratosis is always present and the clinical picture may resemble lichen planus, psoriasis or occasionally a tertiary syphiloderm (Darier's case 1).

As a rule, the condition causes only slight inconvenience to the patient. There may be a mild degree of itching. The patient in Bowen's first case [2] experienced pain when sitting or walking, and especially when the lesions became excoriated. In the cases that I have observed, the only inconvenience experienced by the patients was a slight discomfort from pressure of the clothing.

REPORT OF CASES

CASE 1.—A real estate broker, aged 59, born in America, of American parentage, from the service of Dr. Hans J. Schwartz, Cornell University Medical School, presented lesions on various parts of the body. At the age of 7, he developed chorea. Arsenic was administered for the relief of this condition at irregular intervals over a period of twelve years. The first lesion of the skin was observed when he was 15 years of age. He described it as a slightly elevated spot about 0.5 cm. in diameter, situated on the calf of the right leg and covered by scales. The spot had increased gradually until at the end of twenty years it had attained the size of a half dollar. For eight years following the onset, there were no other lesions; then new patches about the size of a fingernail developed on the legs. Later, lesions of various sizes and shapes developed on the trunk and limbs, but the face, palms and soles remained free. The patient described the lesions as rough, red and somewhat scaly patches, ranging from a few millimeters to 2 cm. in diameter.

Various treatments, such as curettage, the application of carbon dioxide snow, and various acids had been tried. Between 1890 and 1895, the patient had been under the care of Dr. G. H. Fox, who curetted the original lesion and several of the smaller ones. There had not been any recurrence of the latter but the original lesion returned and spread after the curettage. The application of carbon dioxide snow had been tried on several of the lesions; these did not return when thoroughly treated, but when they were not so treated recurrences took place at the edge of, or in, those areas in which the snow "did not go deep enough."

An examination in March, 1927, revealed the presence of reddish-brown, scaling or crusted plaques of round or irregularly rounded shape, ranging from 1 mm. to 2 cm. in diameter. The lesions were numerous (about 200) and were distributed over the skin of the trunk and extremities. The face, with the exception of a minute area under the left eye, palms, soles and visible mucous membranes were free. The great majority of the lesions were flat and clearly demarcated from the adjacent normal skin. Others were elevated from 2 to 5 mm. above the surrounding skin. A few of the plaques presented a vegetating or papillomatous appearance, but none of them showed the characteristic rolled border of the rodent ulcer type of lesion. One large plaque presented a smooth surface, which was broken up into small lobules, and resembled the gross lesion of hepar lobatum in miniature. At the time of writing (March, 1928), the lesions were clearing up rapidly with the use of the long wave length x-ray, which was administered under the supervision of Dr. Joseph Jordan Eller.

CASE 2.—A dentist, aged 43, born in America, of German-American parentage, a patient of Dr. Ray H. Rulison, presented a single lesion on the left leg, another on the left breast and multiple lesions to the number of about a dozen on the

upper portion of the chest, shoulder and arms. The lesion on the leg was situated on the outer side of the left calf, and its duration at the time of examination was from three to five years. It was round, the size of a dollar, and covered with a thick verrucous crust. The surface, exposed by removal of the crust, was deep red. The lesion on the left breast involved the nipple and entire areola. The nipple was flattened to the level of the surrounding skin, and the general appearance was that of a scaling eczema. The remaining lesions pre-

Fig. 1 (case 1).—Bowen's dermatosis.

sented a picture identical with the lesions of Darier's second case; viz., "red scaling patches sharply circumscribed, flat, level with the normal skin and covered with fine white adherent scales." There was not any induration, and the skin appeared slightly atrophic.

MICROSCOPIC CHANGES

Sections from numerous lesions and various locations were excised for microscopic study. With slight variations, the histologic picture was the same in all,

and conformed in almost every detail with Bowen's original description. In a section taken from a lesion on the thigh (case 1), marked hyperkeratosis, parakeratosis and acanthosis were observed. In one area, several papillae were closely compressed and extending outward in pointed vegetations (fig. 2). The malpighian layer contained numerous anaplastic cells, with large, deeply staining nuclei and perinuclear hydrops. There were numerous mitoses and in places a suggestion of amitotic division, such as large chromatin masses piled up in clumps, but there were no cells seen in actual amitosis.

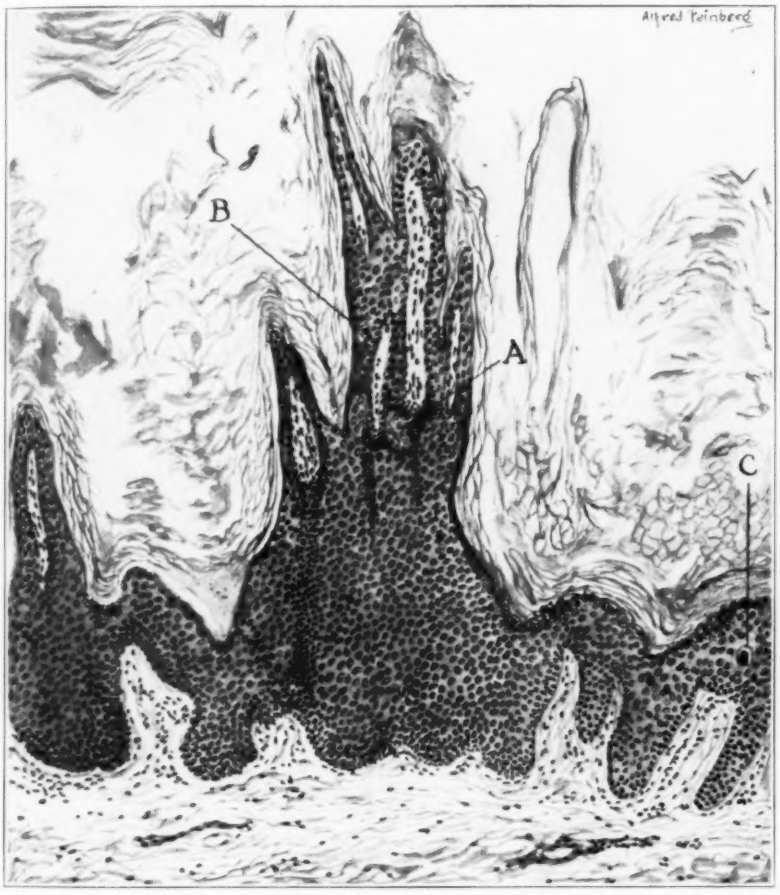

Fig. 2 (case 1).—Section from a lesion on the thigh, showing alveolar formation at *A*, mitoses and perinuclear hydrops at *A* and *B* and large cell showing characteristic "clumped" nuclei at *C*.

A characteristic feature, which was also observed in case 1, was the tendency of groups of cells to arrange themselves in the form of alveoli, which were lined by compressed epithelium (figs. 2 and 3). The nuclei of the cells in these areas were large and took a deeper stain than those of the normal epidermis. Sections from a lesion taken from the back showed great irregularity in polarity and numerous hydropic mitoses. There was no definite resemblance in any of

the lesions of case 1 to either a basal cell or a squamous cell carcinoma. Sections from the lesion on the leg (case 2) revealed changes similar to those found in case 1, but the cells here were relatively smaller. All the other features, irregularity of polarity (which was especially prominent), variation in size, hyperchromatism of the nuclei, mitotic figures and alveolar grouping, were present but not so pronounced as in case 1.

The lesion of the breast, although it presented a similar clinical appearance, on microscopic examination proved to be a basal cell carcinoma. Transition stages could not be found between the lesion of Bowen's disease and the basal cell carcinoma.

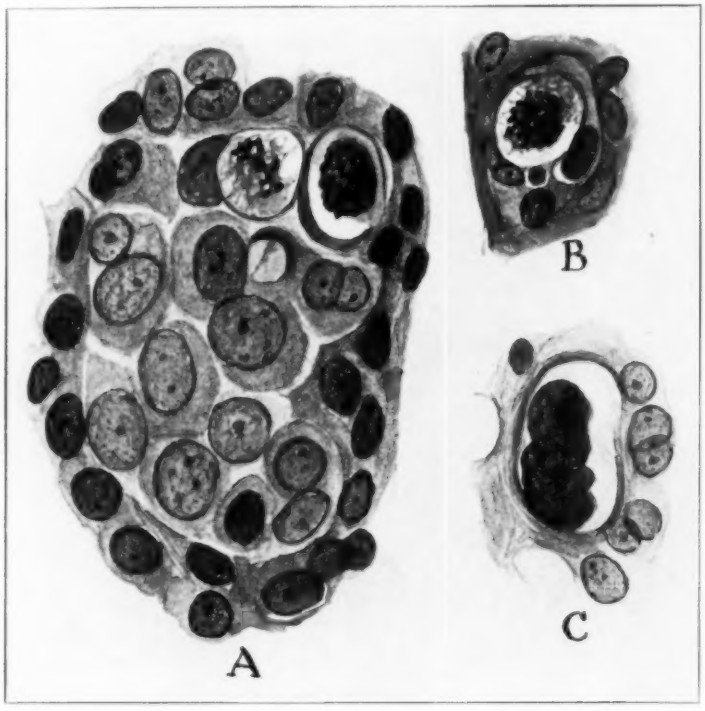

Fig. 3.—High power view of figure 2, showing character of the cells.

COMMENT

Darier's [1] claim that the characteristic histologic feature of the lesion in Bowen's disease is dyskeratosis has been disputed by recent writers. Pautrier and Lévy [10] and Kogoj [11] called attention to the fact that dyskeratosis is a secondary phenomenon and that it has been found in various conditions, such as ordinary warts, cutaneous horns, tuberculosis

10. Pautrier, L. M., and Lévy, G.: Considerations sur la dyskeratose et la groupe des affections ditres dyskeratosique, Bull. Soc. franç. de dermat et syph. **32**:59, 1925.

11. Kogoj, F.: La dyskeratose, Ann. de dermat. et syph. **18**:351 (June) 1927.

cutis and blastomycosis (Pautrier). Dyskeratosis, then, according to these authors, is a secondary and unimportant feature of the dermatosis of Bowen's disease when compared with other alterations which are constant: (1) large cells with deformed nuclei; (2) monstrous elements containing many nuclei; (3) large cells with vacuolated cytoplasm strewn with granules of chromatin.

If other important cellular manifestations are added to these, such as irregularity in size and shape of the cells and staining qualities of the nuclei, numerous mitoses and disordered polarity, one gets a composite picture of the type of the lesion in Bowen's disease—a picture sufficiently characteristic to confirm a clinical diagnosis.

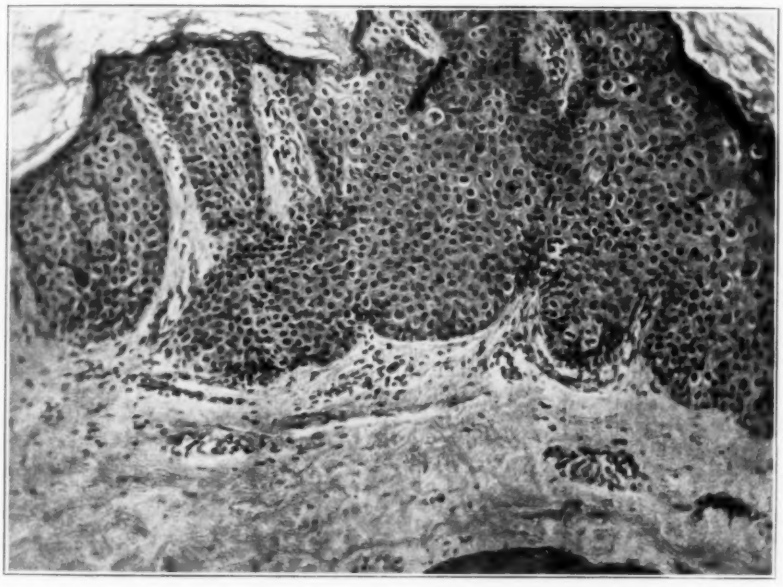

Fig. 4.—Low power view from a portion of section shown in figure 2, showing disordered polarity mitoses, hyperchromatic "clumped" nuclei and hyperkeratoses.

Cases have been reported in which the Bowen dermatosis was associated with other types of carcinoma. In some of these reports it was not made clear by the descriptions and figures whether the carcinomatous lesions were further transformations of the Bowen lesion or merely associated conditions. For example, in one of Bowen's original cases another lesion was associated with the Bowen "dermatosis," which was histologically a basal cell carcinoma. Strangely enough, Bowen [4] did not comment on this interesting association, but it is apparent from his description and figures that the basal cell carcinoma was not a transformation of the Bowen lesion, but an unrelated tumor. Furthermore, one of the features of this case on which Bowen [12] based

his opinion that the Bowen dermatosis was a precancerous lesion was the fact that the patient died of cancer of the pylorus two years after he had been cured of the lesions of the skin.

TRANSFORMATION TO INFILTRATING CARCINOMA

Cases have been reported in which the Bowen lesion became transformed into an infiltrating carcinoma. Darier [1] reported cases in which he observed transformation to infiltrating carcinoma with metastasis. In another case of Bowen's disease, a slide from which was loaned to me by Dr. Fred Wise, the histologic picture showed the anaplastic cells of epidermal pegs in the hair follicles which were breaking through the membrana propria of the epidermis and infiltrating the corium in irregularly shaped buds. Highman's [5] case, which was clinically syphilis and histologically characteristic of Bowen's disease, did not show carcinomatous infiltration of the deeper tissues. There was no such transformation in either of the cases reported here, but in one of them (case 2) a basal cell carcinoma developed from normal hair follicles and not from portions of epithelium that showed the Bowen lesion. Thus, there is evidence that (1) the lesion in Bowen's disease may remain indefinitely within the confines of the epidermis, as in case 1, or (2) it may break through the basement membrane and become transformed into an infiltrating carcinoma.

BOWEN'S DERMATOSIS NOT A PRECANCEROUS LESION

Bowen [12] and Darier [13] designated the lesion in Bowen's disease as a "precancerous" dermatosis. The cellular changes constituting this lesion are, from the beginning, those generally considered as characteristic of malignancy. It is true that the disease may run a course throughout a lifetime (case 1) without showing any tendency to actual invasion of the underlying corium. From the pathologic point of view, however, the cells in the Bowen lesion have already undergone the changes of malignant neoplasia, and, for this reason, the lesion should be classified as intra-epidermal carcinoma, on the same basis as similar epithelial changes (dysgenetic epithelial hyperplasia of Cheatle [14]) within the ducts of the mammry glands are designated intraduct carcinoma. The term "precancerous," therefore, in the sense of Darier and Bowen, is a misnomer and should not be used.

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12. Bowen, J. T.: Precancerous Dermatoses: The Further Course of Two Cases Previously Reported, Arch. Dermat. & Syph. **1**:23 (Jan.) 1920.

13. Darier, J.: Sur une affection precancereuse recement decrite, Bull. Acad. de méd., Paris **83**:464, 1920.

14. Cheatle, G. L.: Desquamative and Dysgenetic Hyperplasia in the Breast, Brit. J. Surg. **13**:509, 1926.

PAGET'S DISEASE OF THE NIPPLE

The condition known as Paget's disease of the nipple was first described by Paget [15] in 1874. Paget's description was purely clinical, but an account of the histology was given by Butlin [16] in 1876. It was soon recognized that the essential and characteristic feature of the lesion was the presence of peculiar pathologic cells in the epidermis of the nipple, which are now generally known as "Paget cells." There are many divergent views in regard to the origin of these cells. Darier [17] regarded Paget's disease as a precancerous condition, with a primary origin in the epidermis and the Paget cells as products of abnormal keratinization. Jopson and Speese [18] also regarded it as a precancerous condition, which is commonly but not always followed by glandular cancer, and occasionally by squamous cell epithelioma. Others denied that Paget's disease is a pathologic entity, but admitted that a primary carcinoma is found in the glands which gives rise to the secondary cutaneous phenomenon. This opinion is represented by Handley,[19] who believed that the changes in the surface epithelium were inflammatory and dependent on edema.

The consensus of modern pathologic opinion is that the "Paget cells" are tumor cells and not the result of any degenerative change in the epidermis. Granting that the Paget cells are tumor cells, there are two possible explanations of their origin: (1) They are epidermal cells which have undergone malignant transformation in situ, or (2) they are invading cancer cells which reach the epidermis by way of the milk ducts or directly from an underlying carcinoma. In 1905, Jacobaeus [20] expressed the view that Paget's cells were derived from an underlying glandular carcinoma, but he did not consider the possibility of a spread from the orifices of the ducts into the adjacent epidermis (Muir).

Masson,[21] Pautrier and Levy [10] claimed that they had been able to demonstrate that the Paget cells do not arise in the epidermis. These authors believed that the cells are invading cells from an underlying carcinoma, which destroy the malpighian cells that they find in their

15. Paget, Sir James: St. Barth. Hosp. Rep. **10**:87, 1874.

16. Butlin, quoted by Muir (footnote 24).

17. Darier, J.: Note sur le dyskeratose, en particulier dans la maladie de Paget, Bull. Soc. franç. der dermat. et syph. **32**:1 (Jan.) 1925.

18. Jopson and Speese: Paget's Disease of the Nipple and Allied Conditions, Ann. Surg. **62**:212 (Aug.) 1915.

19. Handley, W. S.: Paget's Disease of the Nipple, Brit. J. Surg. **7**:183, 1919-1920.

20. Jacobaeus: Virchows Arch. f. path. Anat. **178**:124, 1904.

21. Masson, P.: Considerations sur la maladie de Paget, Bull. Soc. franç. de dermat. et syph. **32**:6 (Jan. 18) 1925.

path. Hickel [22] reported a case which he claimed clearly demonstrated that Paget's disease is due to an invasion of a glandular cancer. The epidermis of the nipple was invaded by the same type of cancerous cell as found in the original tumor.

One may object to this conception of Paget's disease, according to Hickel, because it may exist for many years without the slightest evidence of a primary carcinoma in the breast. We must remember in this connection that certain breast tumors have a very slow evolution in spite of the early invasion of the milk canals and may rest latent during many years. The only clinical manifestation may be through the cutaneous lesion. Thus M. B. Schmidt (*München. med. Wchnschr.* 1912, p 1, 250) related a case of Paget's disease in a woman, aged 65, which in the course of eight years had invaded all the superficial breast without the slightest evidence of a tumor in the parenchyma of the gland, but after amputation a small nucleus of cancer was found in the breast.

The apparent absence of a mammary tumor, therefore, does not prove that Paget's disease is primary in the epidermis. Pautrier and Levy [10] did not believe that there ever was a case of Paget's disease of the nipple without an associated carcinoma of the mammary gland.

Cheatle [23] reported a series of eight cases and Muir five cases of Paget's disease of the nipple, all of which were associated with carcinoma. It is also interesting to recall here that the cases reported in Paget's [15] original communication were all associated with carcinoma. Cheatle [23] concluded that Paget's disease is a primary carcinoma, with its common site of origin in the outlet of the mammary ducts; that the agent of irritation which induces Paget's disease is also concerned in inducing primary carcinoma of the breast, which is reached by means of the mammary ducts. This is the multiple primary theory of the origin of Paget's disease and carcinoma. Carcinoma, below the sinuses of the milk ducts, according to Cheatle,[23] does not induce Paget's disease.

In an excellent monograph, Muir [24] adopted the view that the Paget cells are tumor cells which are produced by neoplastic proliferation of the epithelium of the upper parts of the ducts of the nipple, from which they pass into the epidermis, where they produce the characteristic Paget lesion. In three of Muir's cases he was able to demonstrate direct continuity between the tumor cells that filled the upper parts of the mammary ducts and the Paget cells of the epidermis.

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22. Hickel, M.: Maladie de Paget d'origine mammaire, Bull. Soc. franç. de dermat. et syph. **32**:29 (Jan.) 1925.

23. Cheatle, G. L.: Paget's Disease of the Nipple, Brit. J. Surg. **2**:295, 1923-1924.

24. Muir, Robert: Paget's Disease of the Nipple and Its Relationships, J. Path. & Bact. **30**:451 (April) 1927.

REPORT OF CASES

CASE 1.—*Intraduct and infiltrating carcinoma of the breast with Paget's disease of the nipple.*

A white woman, aged 48, born in America, married, presented a lump in the upper and outer quadrant of the breast. The patient said that the growth was

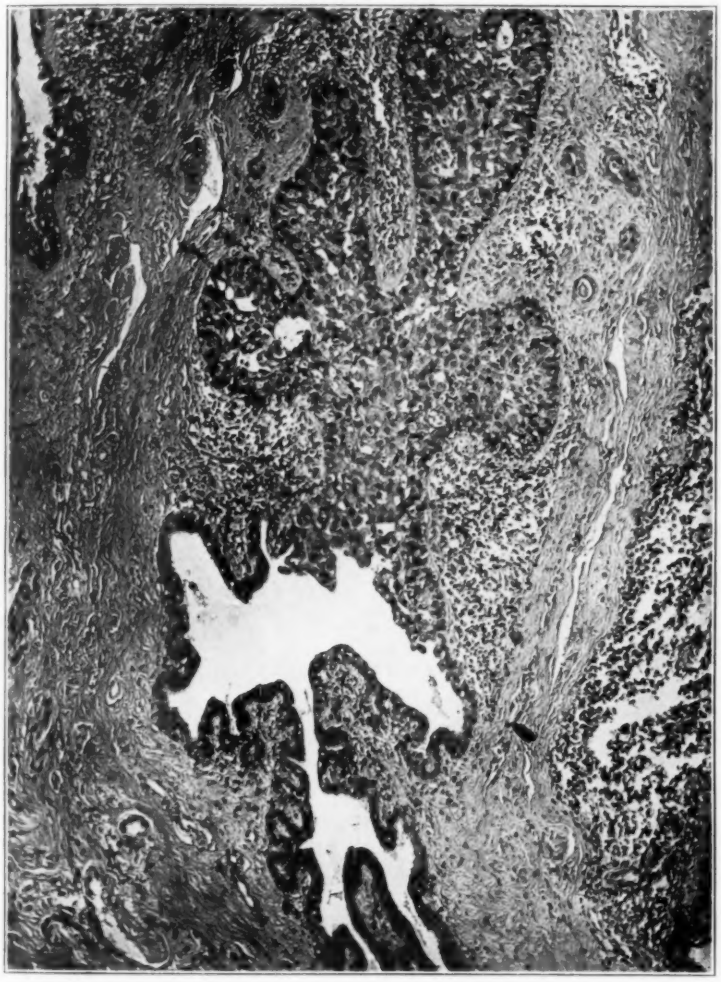

Fig. 5 (case 2).—Longitudinal section of a lactiferous sinus, showing the site of origin of the neoplastic growth and its extension upward toward the surface epithelium. The lower portion of the sinus is lined by normal epithelium.

of two years' duration. The nipple was retracted and the seat of an ulcerated area that extended to the outer edge of the areola.

CASE 2.—*Intraduct carcinoma and Paget's disease of the nipple.*

A white woman, married, aged 51, presented a lesion of two years' duration. There was a superficial area of ulceration in the left nipple and areola. The only subjective symptom was a slight sensation of burning.

Examination of the breast, following mastectomy, revealed the presence of several grayish lines beneath the nipple, which radiated downward into the mammary fat and appeared to connect with a pinkish-gray tumor in the gland. The axillary flap contained seven or eight lymph nodes from 0.8 to 1 cm. in diameter. On section, these were pinkish gray and obviously infiltrated.

Fig. 6 (case 1).—Longitudinal section of a duct filled with tumor cells which can be seen "breaking through" into the underlying tissue of the breast. The resemblance of the tumor cells within the duct to the Paget cells shown in figure 9 should be noted.

MICROSCOPIC CHANGES

A radical mastectomy was performed in each case, and microscopic sections showed the histologic picture of intraduct carcinoma and Paget's disease of the nipple.

In case 1, there were metastases of the axillary glands.

Both cases showed collections of tumor cells which occupied the ducts in the region of the sinuses. Longitudinal sections of these showed the origin of the tumor about the middle portion of the sinus (fig. 5). Toward the upper part, the tumor infiltrated ducts appeared as a thick wall of tumor cells surrounding a thin layer of squamous epithelium in the center (fig. 7). The same changes were present in the squamous epithelium of the areola; the epidermis showed various degrees of infiltration from scattering cells to complete replacement.

COMMENT

The continuity between the tumor cells which filled the upper parts of the mammary ducts and the Paget cells in the epidermis, observed

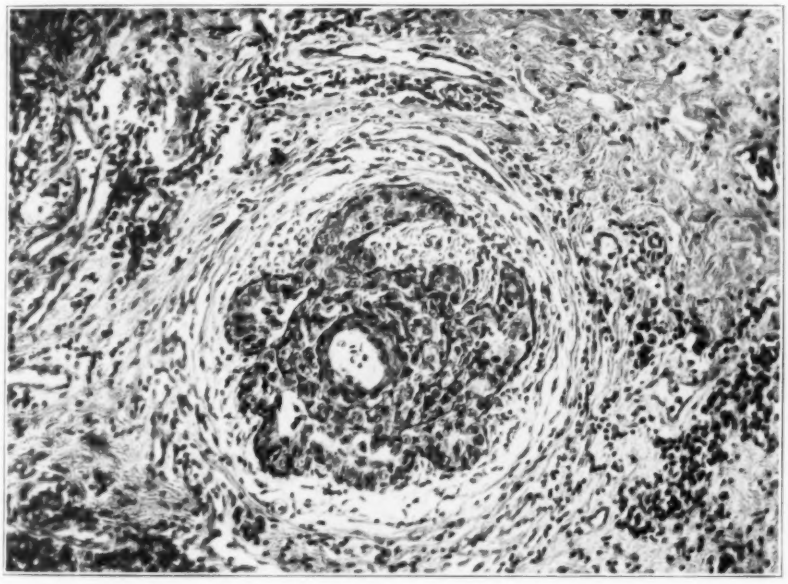

Fig. 7.—Cross section of a duct (intraduct carcinoma), containing large, pale tumor cells which are separated from the lumen by flattened epithelial cells. The reactive thickening of the connective tissue around the duct should be noted.

by Muir in three of his cases, was demonstrated in material from both of the cases reported here (fig. 8). These observations lend strong support to the view that the lesion in the epidermis (Paget's disease) is a metastasis by direct extension from an intraduct carcinoma.

EXTRAMAMMARY PAGET'S DISEASE

Paget's disease occurring on other parts than the nipple has been reported; the occurrence has been used as an argument in favor of the view that the condition is a primary disease of epidermal origin. Cheatle [23] cited a case of Paget's disease on the abdomen with the absence of any other form of carcinoma. Muir [24] examined a section

from this case and reported that "the cells were of a somewhat indeterminate character rather like those of some rodent ulcers." It seems doubtful whether all the cases reported as extramammary Paget's disease conformed with either the clinical or the histologic picture of the condition described by Paget. The following case, for example, that of a woman, aged 77, with brown, crusted, scaly, serpiginous lesions on the right side of the abdomen, was recorded as a case of extramammary Paget's disease. A biopsy was performed, and sections were examined; the histologic diagnosis was Paget's disease. A closer examination, however, revealed a histologic picture indistinguishable

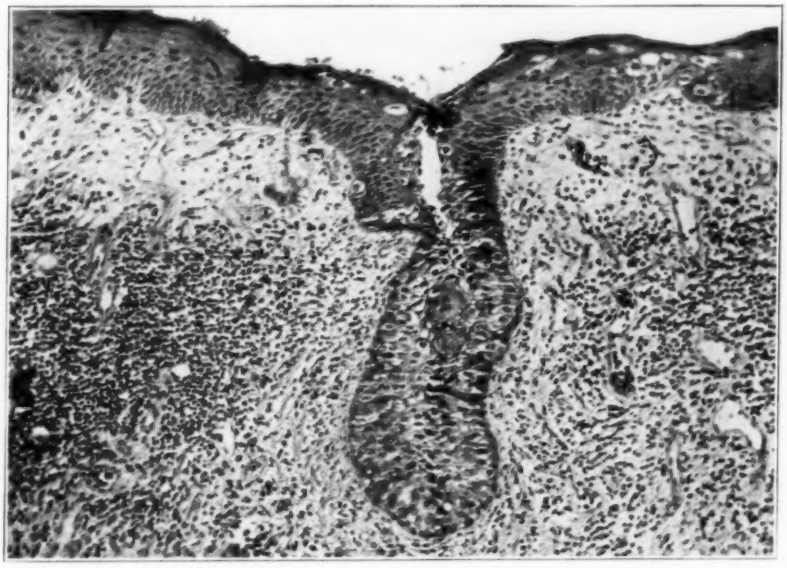

Fig. 8 (case 2).—Intraduct carcinoma, upper part and orifice of a duct, showing continuity of the cells of the duct carcinoma with Paget cells in the epidermis. The presence of the characteristic lymphocytic and plasma cell infiltration of the adjacent corium should be noted.

from that of the cases shown here (fig. 10) as primary intra-epidermal carcinoma (Bowen's disease).

Hartzell [25] collected a series of cases that were reported as extramammary Paget's disease, the majority of which turned out to be carcinoma. Jungmann and Pollitzer's case proved to be a pavement cell carcinoma. Ravogli's case of Paget's disease of the nose proved to be a carcinoma, from which the patient died. Winfield's case of an eczema-like eruption of the lower lip finally proved to be a carcinoma.

25. Hartzell, M. B.: Extra Mammary Paget's Disease with Report of a Case Occurring on the Forearm Associated with a Naevo-Carcinoma, J. Cutan. Dis. **28**:379 (Aug.) 1910.

Fordyce [26] reported two cases of extramammary Paget's disease in which all the clinical features of this condition were present in the early stages Histologically, these were cases of basal cell carcinoma, and while degenerative changes due to an edema of the cells were present, they were not, according to Fordyce, identical with those found in

Fig. 9.—Low power view of epidermis infiltration with Paget cells. Extreme cellular infiltration of adjacent corium. The Paget cells are larger than normal prickle cells, and their cytoplasm tends to become hydropic.

Paget's disease of the nipple. Fordyce's [26] comment quoted here should be carefully weighed by those who still believe in the occurrence of

26. Fordyce, J. A.: Paget's Disease (?) of the Gluteal Region. The Effect of the Roentgen Ray upon the Disease, J. Cutan. Dis. **23**:193 (May) 1905.

Paget's disease as an extramammary condition: "It is not at all certain that all cases reported as extramammary Paget's disease conformed in their clinical and histologic features with the well-known affection about the nipple."

DYSKERATOSIS FOLLICULARIS (DARIER'S DISEASE) AND MOLLUSCUM CONTAGIOSUM

There is no record in the literature that either dyskeratosis follicularis or molluscum contagiosum has ever undergone a malignant evolution. Wise and Parkhurst [27] reported epithelioma occurring in a

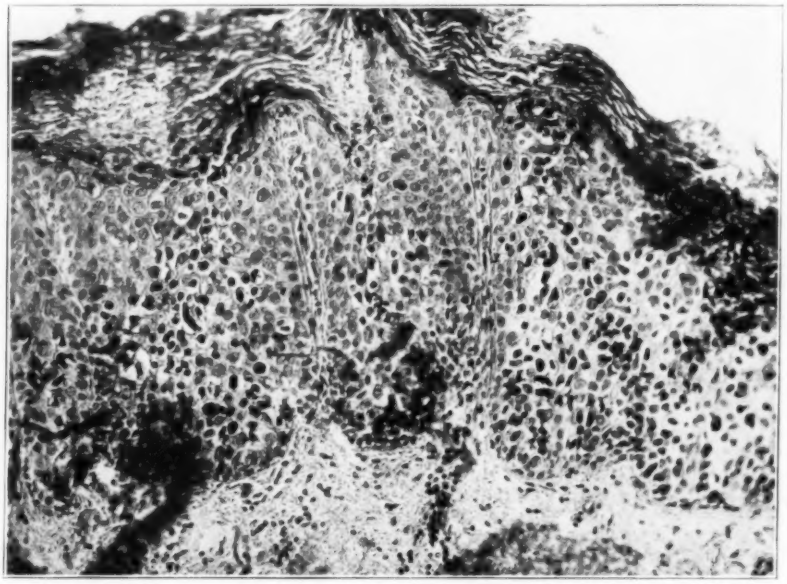

Fig. 10.—Section from a lesion on the abdomen. Bowen's dermatose (medium power), showing atypical polarity, hydropic epidermal cells with deeply staining and irregularly shaped nuclei, many of which are in mitoses. The excessive keratosis and the appearance of the papillary bodies which have been reduced to thin strands as a result of pressure from the proliferating epidermal cells should be noted. There was not any downgrowth into the lymphatics or tissue spaces of the corium.

case of Darier's disease, but they did not claim a parental relation between these diseases. The Darier lesion has to do largely with the process of keratinization which takes place too rapidly, with the result that the intercellular bridges are destroyed and the basal layer separated from the prickle cells by characteristic lacunae, which sometimes extend to the stratum corneum. As a result of this separation, the germinal

27. Wise, Fred, and Parkhurst, H. J.: Notes on Two Unusual Cases of Darier's Disease, Arch. Dermat. & Syph. **11**:430 (Oct.) 1920.

layer proliferates, with the formation of papillary downgrowths. Some authors regard these changes as even more characteristic than the presence of the "corps ronds" and "grains." I have seen one case in which there were neither "corps ronds" or "grains" and in which a histologic diagnosis was possible by the presence of the Darier fissures (lacunae) and papillary downgrowths of the basal epithelium.

MOLLUSCUM CONTAGIOSUM

Dermatologists are accustomed to associate the histologic picture of Darier's disease with the "corps ronds" and molluscum contagiosum with the molluscum bodies. Wile and Kingery [28] showed that the lesion of molluscum contagiosum results from the action of a filterable virus, which produces an excessive and untimely cell degeneration. This is followed by secondary regenerative hyperplasia of the germinal epithelium which constitutes the neoplastic-like element of the lesion.

SUMMARY

1. Bowen's disease is a histologic entity.

2. The primary and essential change in the Bowen lesion is not dyskeratosis but a disturbance of epithelial growth in which the cells have undergone the changes of malignant neoplasia.

3. Bowen's dermatosis should be classified as intra-epidermal carcinoma; the lesion may remain within the epidermis indefinitely, or may break through the basement membrane and infiltrate the corium and deeper tissues.

4. As Bowen's disease is cancer, the term "precancerous" as applied to the lesion by Bowen and Darier is illogical and should not be used.

5. Other types of carcinoma may arise independently and may be associated in the same case with the Bowen lesion.

6. Paget's disease of the nipple is cancer and therefore should not be classified with Darier's dyskeratoses.

7. The pathogenesis of Paget's disease is a disputed question. The cases reported here support the view that the lesion is a metastasis from duct carcinoma, but the theory advanced by Cheatle of multiple primary origin must also be considered.

8. There is strong evidence that the so-called extramammary Paget's disease is Bowen's disease.

9. Dyskeratosis follicularis (Darier's disease) and molluscum contagiosum are not neoplastic diseases and therefore should not be classified as belonging in the same group with Bowen's dermatosis and Paget's disease of the nipple.

100 West Fifty-ninth Street.

28. Wile, U. J., and Kingery, L. B.: J. Cutan. Dis. **37**:431 (July) 1919.

ABSTRACTS OF DISCUSSION

Dr. Fred Wise, New York: Dr. Fraser's topic is one which has been controversial and has caused a good deal of confusion in the minds of dermatologists and pathologists ever since the publications of Bowen and Darier. Not only had it caused a good deal of confusion, but many errors have appeared in the literature. Dr. Fraser's paper shatters many illusions about the subject of Bowen's disease, Paget's disease and extramammary Paget's disease. During the last six months, I had occasion to study the subject intensively in preparing a paper for a future meeting, and I came independently to the same conclusions that Dr. Fraser has given. The points Dr. Fraser brought out, I think, depend a good deal on the interpretation of the changes that are seen histologically. It is certain that what Fraser saw, Bowen and Darier also saw, but they put an entirely different interpretation on the matter. Fraser said that the dyskeratosis is secondary; that is of importance, for Bowen and Darier thought it was primary. Fraser said that malignancy is manifest in the epidermis right from the start. Bowen and Darier did not consider it in that light, and still probably do not. Many who have written articles on the subject have seemed to follow the teaching of Bowen and Darier, but their observations have not met with universal approval.

From my study, from the clinical standpoint, I have concluded that it is definitely impossible to make a clinical diagnosis of Bowen's disease and of extramammary Paget's disease. They look so much like epithelioma that any one who attempts to make a positive diagnosis clinically is treading on dangerous ground. Histologically, Bowen's disease shows remarkable variations. Personally, I have seen only two cases in a score of years. In Bowen's disease the growth may remain confined to the epidermis for many years and may never result in metastases. In the other disease it may infiltrate, and metastases may appear. A series of patients with the latter type have been reported, in whom not only dyskeratosis was present but also multiple lesions, one or two of which might have been Bowen's disease and the others, epitheliomas. There are only a few cases on record in which multiple examinations were made with the microscope. This shows that there must be some constitutional tendency in the patient's skin producing lesions, one of which might terminate in Bowen's disease and the other in an ordinary basal cell epithelioma.

As to the extramammary Paget's disease, I have also searched the literature for cases that could be disputably classed as such, and my conclusion is that the only thing known about extramammary Paget's disease is that it is extramammary. Further than that I do not think that anything has been established that would justify the diagnosis. One or two cases have proved to be epitheliomas, as Dr. Fraser said.

Dr. Udo J. Wile, Ann Arbor, Mich.: It is extremely pleasing to have the corroboration that Dr. Fraser has given to the paper presented last year by Dr. Pautrier, on Paget's disease of the nipple. I think there should not be any doubt, from then and now on, that in these cases one is dealing with a primary cancer of the breast, as Dr. Wise has just said.

I think that the greatest service Dr. Fraser has given us is to put another nail in the coffin of Bowen's disease. The next best thing would be to omit this misnomer from future textbooks. It is not in any way different from what in the immediate past has been called multiple epithelioma.

Dr. Frederick D. Weidman, Philadelphia: What I shall say will have little value, because I have so little first-hand knowledge of the subject. I do not have a definite opinion, for I have not seen a sufficient number of cases to permit

me to come to a conclusion as to the validity of Bowen's disease; but I wonder whether we dermatologists have been seeing the entire complex which the French have seen, and on the basis of which they have so whole-heartedly accepted Bowen's disease as a clinical entity. I feel sure that dermatologists have come to discredit the idea of an entity of Bowen's disease as they have found in it so often the picture of ordinary basal cell carcinoma; but if one goes back to the original description of the cases, this will be found to be described as part of the disease, and yet the symptoms were not entirely those of cancer.

For instance, there is another phase of the disease in the form of infiltration, which has been likened to the infiltration of lupus vulgaris, and if one accepts the principle that a disease, once named, should be regarded only as the disease with the clinical complex which the original describer of the disease postulated, I think it should be agreed that there is something in France and elsewhere that dermatologists in this country have not been seeing in Bowen's disease. We should go slowly in scrapping Bowen's disease until we are sure that we have seen the same complex that Bowen did. The matter of histology is only one factor in the whole situation. If it is shown, on further observation, that the other additional features of Bowen are there, the term Bowen's dermatosis will have to be retained.

Another matter discussed is that of the sequence of changes in the region of the nipple, whether the cancerous changes begin above or below. I think that a good deal depends on the degree of depth in the mammary gland. If it can be established that they obtain deep in the gland, as Dr. Fraser showed on the screen, that is strong evidence that the disease is primary in the depths. However, when the changes begin in the superficial portion of the ducts, they are not so important as pieces of evidence, for then the cancerous influences, whatever they may have been and even though they originated on the surface, will play alike on the superficial ductal cells as well as on the surface, because the two kinds of cells are so closely related embryologically. That is, these cancerous elements will continue down into the ducts and it may be expected that the morphology will appear the same in the superficial part of the ducts as in the skin.

Dr. Walter J. Highman, New York: In 1916, I presented a paper before the American Society for Cancer Research, outlining the concept which has been presented by the essayist today and by Dr. Wise in his discussion. I was thirteen years younger then, and out of the mouths of babes and sucklings words of wisdom sometimes issue.

In the first place, the term "precancerous" can not be used validly. There is nothing certain in prophecy, and it was either prophecy or wrong when it was originally employed. I think that shortly after his first paper Bowen reported another case, and Darier added two to his first two. This made four cases for the French and three for the Americans, a total of seven cases. That there should be a paucity of these cases is due to the fact that in the sense of Bowen and Darier they are rare. In this country, however, a great many conditions have been called Bowen's precancerous dermatosis which are ordinary senile keratosis. In my paper, I did not follow Jacobi's reasoning closely as to Paget's disease, for I thought he was wrong. I agree with the point of view Dr. Fraser expressed, and think that Paget's disease is unlike the so-called Bowen's disease and that the term precancerous dermatosis should be dropped from our vocabulary, as I hoped it would be thirteen years ago. I think that it is an intradermal cancer, if there is such a thing, and I believe there is; that particular concept had not arisen thirteen years ago.

Dr. Fraser's presentation is fundamentally sound. First, it eliminates the disease of Bowen entirely. Secondly, it identifies mammary Paget's disease as an entirely individual state of affairs. Thirdly, it eliminates from consideration the concept of extramammary Paget's disease—the only sense there ever was in that was the likeness of the eczematous phase to that of Paget's disease of the breast. When extramammary Paget's disease is malignant, it is cancer of the skin. When it is not malignant it is probably an intradermal cancer in the sense in which Dr. Fraser suggests.

Dr. Charles J. White, Boston: I agree with the remarks so far as the microscopic observations go, but, if I remember correctly, Dr. Bowen's cases were atrophic rather than hypertrophic. I think that the term should be kept to designate the atrophic type of cancer, so that there will be some recognized term for this particular type.

Dr. Henry E. Michelson, Minneapolis: I am most enthusiastic about Dr. Fraser's point of view, and I also agree with Dr. Highman that there is such an entity as intradermal epithelioma. I think that Dr. Fraser will agree that if the Bowen's type of lesion does run riot, it will become a squamous cell type of cancer. I, therefore, believe that the treatment should be wide excision, for these lesions are potentially malignant. The element of time in both Bowen's and Paget's diseases is variable. Even though either type may become intensely malignant, they may remain quiescent for a long time before they become active.

Dr. J. Frank Fraser, New York: I agree with Dr. Wise that it is not possible to make a diagnosis of Bowen's disease on clinical grounds. The histologic picture, however, is characteristic and by it a clinical diagnosis can be confirmed.

If one restricts the meaning of the term carcinoma to an infiltrating neoplasm, Bowen's disease is not a carcinoma. If, on the other hand, the definition of the term can be extended to include a lesion in which the cells have undergone all the changes constituting malignancy, but remain in situ, there is justification in designating the Bowen lesion as an intra-epidermal carcinoma.

In answer to Dr. Michelson's question, the Bowen lesion does occasionally "run wild," and when this happens it becomes an infiltrating carcinoma of the squamous cell type.

Speaking of Paget's disease, and whether it might not be possible for the lesion to arise primarily in the epidermis, the bulk of recent evidence does not support that conception. If the Paget lesion were primary in the epidermis, the cancer of the breast which is always present would be a secondary lesion. Cheatle did not find any evidence in the eight cases which he studied of extension downward of the Paget lesion. The balance of the evidence points in the other direction: that the Paget lesion is a metastasis from a duct cancer.

The question of the occurrence of Paget's disease on other parts than the nipple can be settled only when there is an agreement on what is meant by Paget's disease of the nipple. If Paget's disease is secondary to a duct carcinoma, one cannot conceive of extramammary Paget's disease without postulating the existence of supranumerary nipples, or an epidermal lesion (Paget's disease) secondary to a cancer of the sweat ducts.

COMPARISON OF RINGWORM CULTURE INGREDIENTS: II AND III*

FRED D. WEIDMAN, M.D.
AND
DOROTHY SPRING, B.A.
PHILADELPHIA

This communication represents an interim instalment of experiments still in course, which are aimed at the elaboration of a ringworm culture medium that will entirely and satisfactorily replace the original "milieu d'epreuve" or test medium of Sabouraud; or, better yet, a medium that will, in addition, be free from the objectionable factors inherent (at least for fungi) in a medium comprised of one or more chemically impure substances like peptone, which are not internationally reproducible at all times. The last mentioned phase of the problem is the one which we look forward to with the greatest expectations. This communication will indicate that at present the efforts of dermatomycologists generally are being directed toward the elaboration of substitutes for Sabouraud's formula, and that our own work, while unfruitful, marks at least a beginning in a different direction, that is, a formula free from defects contingent on peptone, such as were indicated.

It is the recent recommendation of no less than three new formulas, each from a separate European nation, which precipitated this report. Even though these formulas did not make any pretense of completely filling the foregoing requirements, they command attention and attempts at confirmation. At the same time that we are reporting the results of tests of these three foreign mediums, we will record various other investigations which, although more or less disconnected, still bear on the general subject of ringworm culture mediums. The foregoing considerations will explain why not all the species of ringworm mentioned in this report were uniformly investigated as to behavior on the different mediums; thus, some strains died out or became pleomorphic, and others were more suitable for one phase of the culture medium tests than others.

The history of ringworm culture mediums is not long. The more ancient aspects may be gleaned from Plaut's [1] collaborative work in

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* Read before the Fifty-First Annual Meeting of the American Dermatological Association, April 30 and May 1 and 2, 1928.

1. Plaut, H. C., in Mracek, T.: Handbuch der Hautkrankheiten, Vienna and Leipzig, Alfred Hölder, 1909.

Mracek's "Handbuch," according to which Rindfleisch employed the cardinal principles of mycologic culture (room temperature, acidity and sugar) as early as 1872. However, it is not our intention to elaborate further on intermediate developments than to memorialize Sabouraud's original formula, with which every mycologist is familiar.

Weidman and McMillan,[2] in 1921, showed that partly because of the failure of the supply of French crude maltose, and particularly since Sabouraud himself was then using crude dextrose, the character of the ringworm fungi depicted for the maltose cultures in Sabouraud's "Les teignes" had become obsolete, but that we could depend on American dextrose and still get along fairly well by depending on Sabouraud's illustrations of cultures as they appeared on dextrose medium. That is, the carbohydrate factor was not the real problem in the case, for it was shown at that time that Difco peptone (an American brand) was unsuitable as a substitute for the imported French (Chassaing) product, and that its deficiencies could not be corrected by adjusting the p_H upward to that of the French. This narrowed the problem largely to a consideration of the peptone factor.

Shortly after the publication of the foregoing article, Hodges [3] tested several American brands of peptone and came to the conclusion that Fairchild's was the most suitable. He sent us his photographs of cultures, and we can confirm the conclusions which he drew from them. It is regrettable that Hodges did not consent to publish his work.

Thereafter followed the recommendation of a medium by Goldschmidt [4] which differed radically from Sabouraud's medium in that it contained lemcose (a proprietary meat extract) and sodium chloride. Grutz' [5] medium was likewise radically different, in that it contained glycerin and sodium chloride, together with a proprietary malt extract dispensed as "Nervina Malz." This medium did not contain any carbohydrate, as such. Then followed Sabouraud's [6] honey medium, which, to all intents and purposes, is his original test medium, in which he substituted honey for maltose.

At this point, it might lead to a better understanding if we take a fuller inventory of the present situation. To begin with, the culture

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2. Weidman, F. D., and McMillan, T. M.: A Comparison of Ingredients of Ringworm Culture Mediums, with Special Reference to American and French Crude Maltose, Arch. Dermat. & Syph. **4**:451 (Oct.) 1921.

3. Hodges, R. S.: Personal communication to the author.

4. Goldschmidt, W. N.: A New Medium for the Growth and Differentiation of the Dermatophytes, Brit. J. Dermat. **36**:204 (May) 1924.

5. Grutz, O.: Cultivation of the Dermatophytons and Their Differentiation by Means of German Mediums, Dermat. Wchnschr. **76**:568 (June 26) 1923.

6. Sabouraud, R.: Note sur le replacement de tout sucre dans les milieux de culture des dermatophytes par le miel d'abeilles, Ann. de dermat. et syph. **6**:515, 1925.

problem is not that of coaxing fungi into growing, as with the influenza bacillus, pneumococcus, meningococcus, etc. Luxuriance is not the important phase of the subject. Most of the commoner dermatophytes grow readily on any carbohydrate medium; or, for that matter, on the ordinary nutrient peptone medium of the bacteriologist. True, a slightly acid reaction and the presence of a carbohydrate encourage greater luxuriance of growth, and the low p_H which the dermatophytes tolerate is an asset in inhibiting bacterial growth and in securing pure cultures. However, they are not essential to the growth, considered pure and simple, of the dermatophytes. The real problem, at least for the present, is the elaboration of morphologic characters that are distinctive for each species. Biochemical changes might be reached out for, of course, but these assistants are at present far secondary in value to the morphologic ones—in the future it may be different. But at this time the problem is that of the selection of ingredients which will reproduce

Extent of Variation in Composition of Honey

Country	Levulose	Dextrose	Sucrose	Wax, Pollen and Insoluble Matter	Ash
England	37.04	36.11	None	Good trace	0.15
Wales	37.66	39.24	None	Trace	0.14
Normandy	37.36	42.02	None	Slight trace	0.17
Germany	33.56	36.16	None	Trace	0.17
Greece	40.43	31.77	None	0.05	0.15
Lisbon	37.69	34.51	None	Nearly 1	0.14
Jamaica	33.60	34.80	2.2 (?)	2.1	0.25
California	38.29	35.57	None	Good trace	0.11
Mexico	36.39	35.04	None	Trace	0.97

the distinctive characters at present laid down by Sabouraud; and, furthermore, the utilization of only those ingredients which can be duplicated internationally—preferably, therefore, substances that are chemically pure. Even the honey advanced by Sabouraud to replace maltose varies in composition in different places and seasons. One of us is interested in bees, and noted a strong red color and an acrid taste of the honey during the season when the bees were feeding on over-ripe cherries which fell on the ground nearby. The United States dispensatory [7] indicates the extent to which honey may vary in composition as seen in the table.

Up to the present, we are unaware of any formulas that fulfil the foregoing requirements. The various synthetic mediums composed of inorganic salts, which have been devised for the study of yeasts, have been made up in the interests of brewers, vinists and other commercialists, and are unsuitable because they are in liquid form. We have made attempts to adapt them to solid substrates, but they have thus far largely failed because the salts reduced the jelly strength of the agar and

7. U. S. Dispensary, ed. 15, Philadelphia, J. B. Lippincott Company, 1883.

it would not solidify. After all, they can scarcely be expected to satisfy our requirements, because they were designed for other purposes. Chemically pure carbohydrates thus far have failed to reproduce all of Sabouraud's maltose pictures; and, of several peptones on the market in this country, Fairchild's is the only one that has approached the Chassaing brand. It would be ideal if we could dispense entirely with peptone, as its composition is so variable. Theoretically, pure amino acids, in proper proportions and combinations, would solve the difficulty; but in practice they are too expensive. Furthermore, being relatively insoluble in water, they are unavailable in our agar substrates. In spite of this, we tested tyrosine, leucine, cystine and glutamic acid; but, even in the presence of dextrose, they supported fungous growths most indifferently, aside from developing any character.

These considerations relative to the nitrogenous moiety also hold good for the carbohydrates, but we would emphasize that they apply with much less force for the carbohydrates. Sabouraud realized something of this sort long ago—there are numerous places in "Les Teignes" where he frankly stated that the appearances of colonies were the same on dextrose as on maltose medium. While it is unfortunate that his crude maltose passed irrevocably from the market, it is not such a serious loss as the passing of Chassaing peptone would be. We have thus come to look with much less interest on the substitution of carbohydrates in the formula than substitutions for peptones. The remarks already made on the composition of honey and the conclusions about its availability culturally (p. 831) are pertinent here. It appears that in the past we have become so engrossed in the carbohydrate factor—maltose versus dextrose, etc.—that we have become blinded to the importance of the nitrogen factor.

We will appraise the situation from another biologic angle. From the standpoint of the requirements of the forty or fifty different species of ringworm, one can envisage how difficult or impossible the problem is of fortifying the defects in Sabouraud's formulas in such a way that the substitute will have exactly the same effect on each of these species. Thus, working as Sabouraud did with a most complex mixture, chemically speaking, he used a combination which would induce a certain grade of luxuriance, texture, color, etc., that collectively comprised the characters of a given species—we will say for illustration, *Trichophyton asteroides*. With *Trichophyton radiolatum*, on the other hand, this same combination of ingredients yielded another combination of characters—what to him was a distinctive colony, in short—and so forth down through the entire list of species of ringworm. But suppose that three or four chemicals in this mixture were withdrawn and three or four others substituted such as occurs when one modifies the peptones employed. Can it be imagined that the same effect will be wrought on

the part of this new formula on each of, say, fifty different species of ringworm? In other words, will each species accept, find suitable and react to this differing chemical environment in the same way that the other forty-nine did, and will the final result be the same form of colony as before? This is too much to assume. It is conceivable that the great majority of the fifty would react similarly within certain limits, provided the chemical composition was not too radically changed; however, this does not satisfy our cultural requirements. For permanent, cosmopolitan and really scientific results and for constructive advance we must have ingredients which have been tested against Sabouraud's entire list of species of ringworm, and the cultural products of which will not vary. As a matter of fact, we had previous experience in this situation when we reported certain species that were "maltose sensitive" (*Microsporon lanosum* and *Microsporon equinum*, the latter particularly) and others that were not. By this we mean that the Sabouraud characters were induced only by crude maltose.

The foregoing thoughts and considerations explain why criticisms, constructive or otherwise, must be directed toward any new mediums which assume to reproduce the cultural forms postulated by Sabouraud; or, if not making such claims, they must show cause for their existence on other grounds than that of luxuriance of growth. After study of and acquaintance with known fungous species on a given medium, it is possible for any individual worker to identify "unknowns" as grown on that medium; in short, numerous formulas could doubtless be constructed and classed as satisfactory in the hands of widely separated workers. But, as a matter of principle, and with an eye toward securing world-wide uniformity such formulas should not be offered for general use until they can demonstrate the merit of being internationally reproducible at all times, or at least that they have some individual advantages which are not counterbalanced by disadvantages in other respects.

II. THE NITROGEN FACTOR*

FRED D. WEIDMAN, M.D.

For the testing of the nitrogen factor, as many species of the dermatophytes as were procurable were used. They were planted on all possible combinations of Chassaing peptone, Fairchild's peptone, an imported French dextrose (crude) and Difco dextrose, chemically pure. All plantings were made in duplicate, and kept in semidarkness at room temperature. Attention was paid not alone to the appearance of the colonies "at prime," but also to the mode of growth at the beginning and at subsequent intervening stages. It is essential to have the cultures in

* Part I of these studies is the article referred to in footnote 2.

duplicate, because this enables the worker to discriminate between the effects of occasional individual variation on the part of the fungus and the effects of the ingredients which are in the substrate. When results were irregular or inconsistent, a second or even a third series of tubes was planted.

MEDIUMS AND SPECIES EMPLOYED

The mediums employed were: (1) Chassaing peptone and imported French dextrose (crude); (2) Chassaing peptone and Difco (American) dextrose, chemically pure; (3) Fairchild's peptone (American) and French dextrose (crude), and (4) Fairchild's (American) and Difco dextrose. The proportions and methods of preparation were as recommended in Sabouraud's "Les Teignes," except that cotton was used for filtering instead of filter paper.

All the species employed were furnished by Professor Sabouraud; their names will appear in the records of the results of the test. It must be understood that the organisms employed doubtlessly were largely stock cultures, that is, old ones which had been transplanted from time to time; but they had been carried along on peptone agar and none were pleomorphic. I feel that whatever disadvantage there may have been in the way of perverted characters because of age were outweighed by the certainty that the work was done with species the identity and pathogenicity of which were beyond question. Certainly, any objections on this score lose weight when it is recalled that this study was essentially one of comparison within a given strain and did not immediately involve characters à la Sabouraud.

It may be noted in passing that the group of species tested was large enough to be fairly representative of the entire group of the dermatophytes; thus, of the twenty-nine species which formed the basis for Sabouraud's original statistics (1907-1909, Les Teignes, p. 582), sixteen were represented among the organisms I have tested. Of the total number of ringworm species recently catalogued by Sartory,[8] numbering seventy-nine, I have tested nineteen. Incidentally, in this compilation of Sartory the order of importance of the several genera has not been changed since the date of Sabouraud, although the list has been almost doubled. Thus, *Trichophytons* include the greatest number of species, with forty-five; *Microsporons*, twenty; *Achorions* and *Lophophytons*, seven, and *Epidermophytons* and *Endodermophytons*, seven.

While these organisms were thus available, we rounded out the comparative tests already described in part I of these studies. Professor Sabouraud sent a large sample of sterilized tap water from Paris which represents the last of the culture factors on which we had not checked

8. Sartory, A.: Parasitic Fungi of Man and Animals, Paris, E. Le Francois, 1924.

heretofore. The results were that the growth of all species was identical on the mediums made with Philadelphia tap water and the imported water (Difco dextrose and Chassaing peptone employed). This test was felt to be necessary in view of the abundant deposits of gypsum around Paris.

RESULT OF TESTS

The following organisms behaved similarly on both Fairchild's and Chassaing peptone, i.e., the all-American ingredients served as well as the French for these species: *Microsporon audouini, fulvum* and *ferrugineum; Trichophyton acuminatum, fumatum, sulfureum, asteroides, radiolatum, lacticolor, purpureum, niveum radians* and *rosaceum; Epidermophyton inguinale,* and *Achorion schoenleinii, violaceum* and *quinckeanum.* That is, using Difco dextrose and Fairchild's peptone, it appears to be safe to come to a decision in the diagnosis of a species when the cultures thereupon agree with the description and illustrations of dextrose cultures in Sabouraud's book. For routine work, crude American dextrose has been found to serve as well as the more expensive chemically pure article; but, in those cases in which the cultures do not appear in typical form, and in some investigative work, the chemically pure substance may be safer.

The species which did not run true to Sabouraud form on Fairchild's peptone were as follows:

Trichophyton crateriforme: This strain has never, in our hands, even when multiple implantations were made on the same medium (all imported French ingredients), yielded crateriform growths consistently. It cannot, therefore, be utilized in criticism and may properly be excluded from the experiment.

Trichophyton (faviforme) ochraceum: With this strain the important difference between the American and French peptone was, first, the rapidity of growth. Fairchild's peptone brought colonies to prime in eighteen days, which measured, in test tubes, 2.5 cm. in diameter. Chassaing peptone required ten weeks to yield colonies of the same size. Secondly, Fairchild's peptone colonies eventually became completely covered by a white powder, whereas the centers of Chassaing colonies remained moist and waxy. Thirdly, the central convolutions were much too close on Fairchild's peptone. Although these differences are important, it should still be possible, if they are kept in mind, to identify this species as grown on the American ingredients.

SUMMARY AND CONCLUSIONS

Of eighteen species of ringworm tested, sixteen were found to develop the same morphologic characteristics on mediums containing in one case Fairchild's peptone, and in the other, Chassaing pep-

tone; and the differences in the way of identification were probably not insurmountable in at least one of the remaining species tested.

Similarly, there were no radical differences in morphology as between colonies grown on imported French dextrose and Difco dextrose, chemically pure.

It is felt that Hodges' report can be confirmed herewith to the effect that Fairchild's peptone is an acceptable, although not perfect, substitute for Chassaing peptone.

III. GRUTZ, GOLDSCHMIDT, SABOURAUD (HONEY MODIFICATION), SABOURAUD'S GLYCERIN AND CERTAIN SYNTHETIC MEDIUMS

FRED D. WEIDMAN, M.D., AND DOROTHY SPRING, B.A.

Six different sets of experiments are included in this section. As there was much overlapping and repetition of the tests, the results will be analyzed, compared and summarized in a final chapter in this paper, besides being reported after each experiment. They are recorded not alone from the standpoint of usefulness of the medium, but also from that of the micro-organismal characters; in this way, a double purpose is served. The composition of the eleven different formulas tested will be found recorded under experiment 4, because it was the most comprehensive set.

REPORTS OF EXPERIMENTS

EXPERIMENT 1 (Jan. 3, 1926).—This was a short preliminary test, directed at Sabouraud's honey medium, Pennsylvania medium being used as the standard. The organisms employed were *Epidermophyton rubrum, Trichophyton griseum* VII and blastomycosis (three strains).

The honey medium was found not superior to the Pennsylvania medium; in fact, it was inferior for bringing out color in *E. rubrum*, and with all three strains of blastomycosis it produced a more pleomorphic type.

EXPERIMENT 2 (Jan. 28, 1926).—In this experiment, Sabouraud's honey formula and Goldschmidt's[4] lemcose medium were compared with Pennsylvania medium. The organisms employed were: *Epidermophyton rubrum* and *inguinale; Microsporon lanosum* (two strains), *felineum* and *fulvum;* blastomycosis (three strains); *Coccidiodes immitis; Achorion quinckeanum* (two strains) and *schoenleinii; Trichophyton pedis, radiolatum, lacticolor, griseum* and *interdigitale*, and *Sporotrichum* (two strains).

In this test lemco did not behave satisfactorily; the surface growths were pure white or gray-white and flatter than on controls. This, however, was not a fair test of Goldschmidt's medium, because the p_H had not been adjusted; hence, the experiment was repeated (experiments 4 and 5). Honey medium was satisfactory except in three species, namely, blastomycosis, *Epidermophyton rubrum* and *Trichophyton griseum.*

EXPERIMENT 3 (July, 1926).—The substance tested here was Sabouraud's honey medium. Two standards of comparison were employed: (1) Sabouraud's test (maltose) medium and (2) Pennsylvania medium. The following organisms were

used as test objects: *Epidermophyton rubrum; Microsporon felineum* and *fulvum; Achorion gypseum* and *schoenleinii* (two strains); *Coccidioides immitis; Sporotrichum* (two strains—Dr. Corson's and Dr. Haase's); *Trichophyton acuminatum, fumatum, gypseum* and *farinulentum,* and *Achorion gallinae.* These tests were made during a particularly hot season, and development of the colony was rapid; "prime" was obtained within three weeks with most of the species.

Again, the honey medium was found nearly equal to the French maltose standard and the Pennsylvania medium. The same degree of luxuriance was found on all mediums. It could not be said that either of the two mediums was superior to the American crude dextrose formula except in a single instance when the honey formula induced the most typical crater that we have ever seen for *Trichophyton crateriforme.*

EXPERIMENT 4 (May 26, 1927).—This was a more comprehensive set of experiments, embracing no less than eleven different formulas. The number of organisms was correspondingly contracted. The species were selected in such a way as to include representatives of different types of colonies, such as powdery, duveteuse, vigorous and weak growers and pigment producers, as follows: *Trichophyton purpureum, gypseum asteroides, cerebriforme* and *equinum,* and *Microsporon lanosum, fulvum, audouini* and *Achorion gallinae.* With the exception of *Tr. purpureum,* all had been growing in subculture for several months in the laboratory. Only one, *M. lanosum,* was pleomorphic.

Mediums Tested.—1. Sabouraud's Test Medium (milieu d'epreuve): This served as the standard of comparison for the others.

Imported French crude maltose (Chanut)	40 Gm.
Imported French peptone (Chassaing)	10 Gm.
Agar	18 Gm.
Distilled water	1,000 cc.

The finished product had a p_H of 4.7; this was not adjusted.

2. Sabouraud's Honey Medium.[6]

Honey	80 Gm.
Chassaing peptone	20 Gm.
Agar	20 Gm.
Water	1,000 cc.

Double the quantity of peptone was used in this medium. The honey was made in the suburbs of Philadelphia. The final product had a p_H of 4.7, and was not adjusted.

3. Pennsylvania Medium: This formula, in use in this laboratory since 1920, was made like Sabouraud's test medium except that an American crude dextrose was substituted for the French maltose. Chassaing peptone was employed. It is thus identical with his dextrose medium except that American instead of French crude dextrose is employed. It has been as satisfactory in our hands as Sabouraud's dextrose medium, but will be willingly discarded when objections crop out against particular lots of the crude dextrose, or when the international medium is achieved. It has an advantage over the original French maltose combination in being comparatively transparent. Its p_H was 4.7.

4. Fairchild's Peptone Medium: This was made like the preceding medium (Pennsylvania) except that Fairchild's peptone (an American brand) was employed instead of Chassaing. Its p_H was 5.2, and it was not adjusted further for use.

5. Grutz' Medium:[8] This is radically different from the foregoing mediums because, among other things, the carbohydrate is represented by glycerin, no sugars. The "Nervina Malz" and sodium chloride will at once be recognized as new. It consists of:

Peptone (Knoll)	5 Gm.
"Nervina Malz"	60 Gm.
Glycerin	5 Gm.
Sodium chloride	5 Gm.
Agar	1,000 cc.

Its p_H was 4.7.

6. Goldschmidt's Medium: This is also radically different from other formulas, because it contains meat extract (lemcose) which the others entirely lack.

Dextrose, chemically pure	40 Gm.
Fairchild's peptone	10 Gm.
Lemcose	5 Gm.
Agar	20 Gm.
Tap water	1,000 cc.
Sodium chloride	5 Gm.

The p_H as originally compounded was 5.5; this was adjusted to 6, as recommended by the author.

The foregoing six formulas represent the ones from which satisfactory results were expected, because they came already well recommended. In the next group, formulas were included for various reasons. Thus, it was appreciated that Sabouraud's glycerin medium (nos. 7 and 8, which follow) was originally designed to receive primary cultures and not to serve as a substitute for Sabouraud's test medium; however, it was included to serve as an education, among other things, in the extent to and direction in which the form of colonies might vary under the influence of such an ingredient as glycerin. Two formulas were employed, as follows:

7. No. 1, chemically pure dextrose:[1]

Dextrose (chemically pure, Merck)	40 Gm.
Glycerin (neutral)	40 Gm.
Peptone (Witte)	10 Gm.
Agar	15 Gm.
Water	1,000 cc.

This had a p_H of 6.3.

8. No. 2, crude dextrose: This was made like the foregoing medium, American crude dextrose being substituted for the chemically pure dextrose. Its p_H was also 6.3.

Synthetic Mediums.—Three formulas, comparatively empiric, were tested. Ammonium lactate was chosen as the source of nitrogen (replacing peptone), because its structural formula is close (for an inorganic compound) to the amino acids which comprise so large a part of peptones.

It is thoroughly appreciated that these attempts with synthetic mediums were only the first approaches to the subject. It seems to be thoroughly established by now that mediums whose only source of nitrogen consists of ammonium salts will not support continuous growth, but that some other substances, commonly

designated as "bios,"[9] are necessary. Autolyzed yeast,[10] tomato juice, extract of carrot, potatoes and beef heart are representative vehicles of bios. However, the use of these substances in our fungus problem is contraindicated, because the composition is not likely to be uniform as required by the conditions which have been first laid down in these experiments. However, the next line of investigation should begin here.

9. Synthetic Medium 1 (Fulmer and Grimes):[11]

Ammonium chloride	1.9	Gm.
Dipotassium phosphate	1	Gm.
Calcium chloride	1	Gm.
Dextrose (chemically pure, Merck)	50	Gm.
Agar	15	Gm.
Water	1,000	cc.

The p_H of this was 4.9.

10. Synthetic Medium 2: This medium was the same as the preceding one, except that saccharose was employed instead of dextrose. Its p_H was 4.8.

11. Synthetic Medium 3—Ammonium Lactate Medium:

Dextrose (crude)	40	Gm.
Ammonium lactate	10	Gm.
Agar	18	Gm.
Water	1,000	cc.

The p_H was 5.9.

All the foregoing eleven lots were sterilized by autoclave and tubed after filtration through cotton.

Results.—1. The synthetic mediums (9, 10 and 11) may be disposed of in a single sentence as failures because they neither supported growth nor developed characteristics of any value. Only a low, flat, moist film developed around the explant, although it was much more abundant on medium containing lactate.

2. Sabouraud's glycerin medium was excellent for bringing out radiating qualities, but was incapable of inducing sufficient luxuriance; that is, the colonies were entirely too flat. It brought out color and other characteristics exquisitely in *Trichophyton purpureum.*

3. Grutz' medium was satisfactory; the colonies closely matched the standard in all cases.

4. Honey medium was equal to the standard for all of the species tested.

5. In Goldschmidt's lemcose, the growths were abundant; more abundant than in the standard, if anything. Other characteristics were not quite equal to the standard; but, like Grutz' medium, this one produced colonies which were well within the realms of possibility for diagnosis.

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9. Robertson, R. C., and Davis, D. J.: Food Accessory Factors (Vitamins) in Bacterial Growth, J. Infect. Dis. **32**:153, 1923.

10. Freedman, L., and Funk, C.: Nutritional Factors in the Growth of Yeasts and Bacteria, J. Metab. Research **1**:457, 1922.

11. Fulmer, E. I., and Grimes, M.: The Growth of Yeasts on Synthetic Agar Media, J. Bact. **8**:585, 1923.

6. In Fairchild's peptone (American dextrose formula), the growth was more abundant than on any of the other recently recommended mediums. Characteristics, correspondingly, were not quite standard, but on the whole within the limits of possibility of identification.

7. Pennsylvania medium continued to be the equal of the original French dextrose, both as to rate of growth and as to other characteristics.

Conclusions.—As to luxuriance in general, as exhibited on the different formulas, there was a large margin in favor of peptone, as may be seen by comparing the first six cultures in the illustrations with the last five. Synthetic mediums were poor except for such rank growers as *Trichophyton equinum.* It might be noted in passing that mediums which do not support growth well (the synthetic mediums) may be useful in testing cultures which have become pleomorphic.

Ammonium lactate is a promising lead for the further elaboration of a synthetic medium, because, while far from satisfactory, it was so definitely superior to the other synthetic mediums. Other substances, such as phosphates, magnesium and iron, should be added.

Fig. 1 (experiment 4).—Microsporon fulvum (reproductions half size). In this and figures 2, 3, 4, 5, 6, 7 and 8, the colonies of all species were six weeks old when photographed, and the composition of mediums was as follows: tube 1, Sabouraud's crude maltose—standard test medium; tube 2, Sabouraud's new honey medium; tube 3, Pennsylvania medium; tube 4, "all-American" ingredients (Fairchild's peptone); tube 5, Grutz' medium; tube 6, Goldschmidt's lemcose medium; tube 7, Sabouraud's glycerin (chemically pure dextrose); tube 8, Sabouraud's glycerin (crude dextrose); tube 9, synthetic, no. 1; tube 10, synthetic, no. 2; tube 11, synthetic, no. 3. Microsporon fulvum was distinctive on all but the synthetic formulas at the earlier stages and was still fairly distinctive when the photograph was taken—more so than the photo shows. The superiority should be noted, through figures 1 to 8, inclusive, of the first six cultures, which contain peptone.

Some of the results of these tests had a practical application as follows: (*a*) In old cultures of doubtful *Trichophyton purpureum,* the strain might be planted on Sabouraud's glycerin medium in the hope of bringing back color. (*b*) Under similar circumstances, with an old culture of *Trichophyton asteroides,* or one doubtfully of this species, the same medium might bring out radiations. (*c*) *Trichophyton equinum,* being such a rank grower, thrives luxuriantly even on synthetic mediums free from bios.

Attention was also directed to the different cultures of the foregoing species from the standpoint of variations in character as they occurred within the species; that is, in the light of a species morphology under such varying circumstances as obtained on the different substrates. Thus, throughout, even on the highly unfavorable synthetic mediums, each species ran uniformly. *Trichophyton asteroides* always showed granular traits, *Microsporon lanosum* was always coarsely duveteuse, and *Achorion gallinae* was always a finely duveteuse, compact type. Excluding the waxy colonies like *Achorion schoenleinii* and *Trichophyton faviforme*, it appeared to us that there were certain characteristics which might be regarded as fixed in each species and which remained unaffected by the composition of its substrate, and we would mention in this connection two characteristics particularly—coarse and fine duvet. The third, but only comparatively fixed character,

Fig. 2 (experiment 4).—Trichophyton purpureum.

Fig. 3 (experiment 4).—Trichophyton cerebriforme.

was powderiness. After this, other characteristics, such as voluminousness, character of the margin (sharp or diffuse), color, development of concentric rings, radiations and folds, became subject to variation in the different species tested as they grew on different substrates. The foregoing considerations are all-important because they have a bearing on the criteria which should be adopted as the more fixed ones, and thus have greater value as a basis for permanent, enduring classification.

EXPERIMENT 5 (Oct. 29, 1927).—This experiment was an enlargement of the preceding one.

The three synthetic mediums, having proved worthless, were not included. Two others which had come to our attention, Czapek's,[12] and a proprietary beer

12. Czapek, cited by Thom, C., and Church, M. B.: The Aspergilli, Baltimore, Williams & Wilkins Company, 1926, p. 39.

wort,[13] recommended by Hynson, Westcott and Dunning, Baltimore, were substituted. Some newly acquired species were tested in this series. The list was as follows: *Trichophyton acuminatum, faviforme ochraceum, faviforme album, ochropyraceum, persicolor, decalvans, purpureum* and *nodoformans;* blastomycosis; *Microsporon japonicum* and *felineum,* and *Endodermophyton tropicale.*

Results.—1. Czapek's, on the one hand, and Hynson, Westcott and Dunning's, on the other, were utter failures on all of the species tested. They yielded neither sufficient luxuriance nor characteristics.

2. Honey medium was equal to Sabouraud's test medium in most cases. It failed for identifying *Tr. persicolor,* in which it produced a highly convoluted, voluminous, dead white colony.

Fig. 4 (experiment 4).—Achorion quinckeanum.

Fig. 5 (experiment 4).—Trichophyton asteroides.

3. Pennsylvania medium was satisfactory in that it most consistently approached Sabouraud's test medium in results. There were not any glaring discrepancies such as appeared at least once on each of the other mediums—even with the honey medium.

4. Fairchild's peptone behaved satisfactorily as a substitute for Chassaing's peptone. Unapproachable for *Tr. persicolor,* it was deficient for *Tr. faviforme ochraceum* (weak growth), for blastomycosis (texture too fluffy) and for *M. felineum,* in which the pink color was overdone. It appears that if pink color is to be sought in a species, Fairchild's peptone is the agent of choice. Thus, there seems to be, throughout, an apparent capacity to produce pink on the part of Fairchild's peptone, which, while useful for some species, may be confusing for others.

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13. The composition of this medium is unknown; it was supplied to us in powder form, to be further and finally prepared in the laboratory.

5. Grutz' medium, on the whole, had no advantage over Fairchild's peptone or Pennsylvania medium. The strong sulphur yellow color of *M. felineum* on this medium was misleading for determinative purposes, and the characteristics of blastomycosis utterly failed to develop on it. Grutz' medium was unique for bringing out the strong yellow color, as well as securing a luxuriant growth of *Tr. faviforme ochraceum.*

Fig. 6 (experiment 4).—Achorion gallinae.

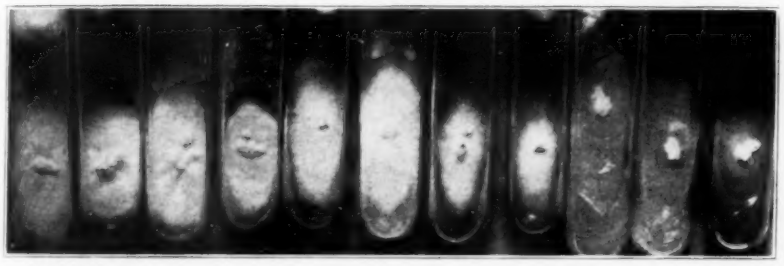

Fig. 7 (Experiment 4).—Microsporon audouini. Radial folds developed only on Pennsylvania medium. This species is such a weak grower that none of the synthetic formulas would support it. We have never obtained folds consistently in tubes for M. audouini on any medium, but have to depend on giant cultures (in Erlenmeyer flasks) when this feature is to be brought out.

Fig. 8 (experiment 4).—Trichophyton equinum.

6. Goldschmidt's lemcose medium was unsatisfactory for *Tr. persicolor*, because it did not bring out any of the pink color. It scarcely supported growth of any kind for *Tr. faviforme ochraceum.*

Results According to Appearances Within a Species.—These results are submitted to indicate to what extent the appearances may vary in one and the same

species as it appears on different formulas; and, also, to show how the foregoing conclusions as to results have been arrived at. Furthermore, this chronicle will indicate the basis for recommendations which will follow concerning the employment of certain special mediums in testing doubtful species.

Tr. acuminatum: On each medium the morphology was sufficiently characteristic readily to permit diagnosis; that is, *Tr. acuminatum* is not a "medium sensitive" organism. Size and configuration were the same on all mediums, but on Fairchild's peptone the color was less a pure brown and exhibited a definite red undertone.

Tr. faviforme ochraceum: Wide variation was noted in the reactions on all mediums, perhaps less marked with the first three (all employing French peptone) than with the others. In the former group, the colonies were about 1 inch (2.5 cm.) in diameter, moist, glistening and smooth, save for the central parts, which

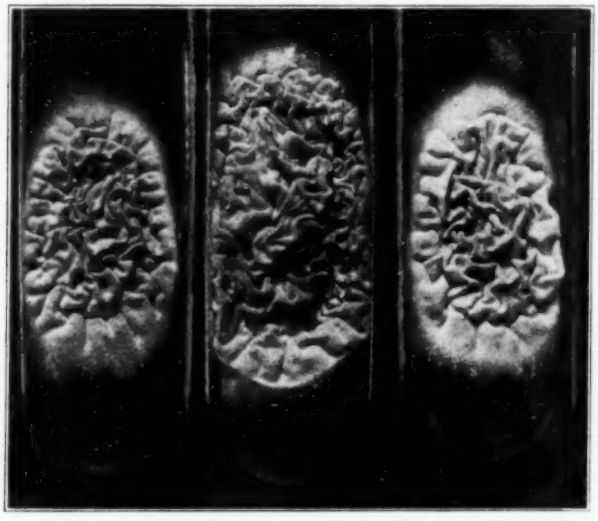

Fig. 9 (experiment 5).—Tr. faviforme ochraceum. Illustrating inadequacy of some of the proposed substitute mediums. Tube 1, Sabouraud's original maltose; tube 2, Sabouraud's honey; tube 3, Pennsylvania medium; tube 4, Fairchild's peptone; tube 5, Grutz' medium; tube 6, Goldschmidt's lemcose. All colonies were distinctly yellow.

were faviform. Grutz' medium yielded the most spectacular development of the whole experiment in the brilliant orange-yellow color and the perfect faviform morphology of the colony. The color was almost the same—certainly as intense—as Ota's *M. ferrugineum;* yet it lacked the rusty quality of the latter and was stronger in the central parts. Grutz' medium can be recommended as a specific differential one for at least this strain of *Tr. faviforme ochraceum.*

Tr. faviforme album: This strain, like *Tr. acuminatum,* appeared the same on all the mediums; that is, it was absolutely medium insensitive, so far as tested.

Blastomyces: No difference was noted on the different mediums with two exceptions, but they were most important. Thus, with Fairchild's peptone the colony was excessively loose and fluffy like *Coccidioides immitis.* It still, however, preserved the brownish color which remains for the effectual differential

diagnosis between the two. On Grutz' medium the colony was far from its true form, being but a hypoplastic, brownish-yellow growth, only 1 cm. in diameter, and having a moist, waxy texture like that of *Sporotrichum schenkii*. This was confirmed by subsequent test. No one would think that this colony was that of blastomycosis. This species is, thus, comparatively sensitive to different peptones and perhaps other substances.

Fig. 10 (experiment 5).—Tr. faviforme album. Illustrating uniform characters that may occur in some species, regardless of composition of substrate. Tube 1, Pennsylvania medium; tube 2, Sabouraud's honey; tube 3, Sabouraud's all-French maltose.

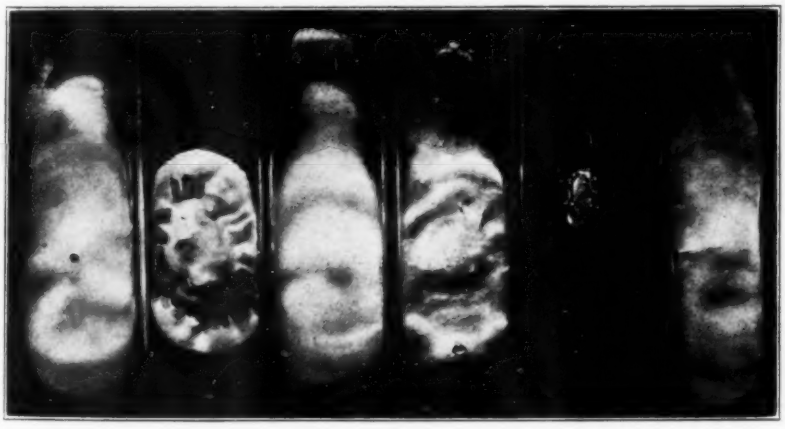

Fig. 11 (experiment 5).—Blastomycosis (same considerations as in figure 10). Grutz' medium was particularly unsuitable.

M. japonicum (seu *M. ferrugineum*, *Grubyella ferruginea* Ota): The appearance of this organism was the same on all the mediums. Convolutions were more highly developed on the honey medium, but the strong rust brown color was equally strong in all. Perhaps there was less luxuriance on Fairchild's peptone, and the convolutions were correspondingly simpler. Pennsylvania medium was beyond criticism in all respects.

Tr. ochropyraceum: Practically no difference was noted on the various mediums, but apparently some irregularity of growth traits was inherent in the species, because in at least two of the formulas differences were observed in the duplicate plantings. Nevertheless, this species may be put down as medium-insensitive, with reservations.

Tr. persicolor: This organism varied markedly on the different mediums, but in almost all it developed enough of the peach pink color to make it identifiable. The voluminousness of the colony was the particularly variable feature, being marked on the honey medium and maltose, and least marked on Fairchild's and Grutz' mediums. The development of color varied with luxuriance, being least in voluminous colonies and most in the scantier ones. Fairchild's peptone and Grutz' peptone were unexceptionable, particularly the former. Powderiness was also better exhibited on these mediums. This species is, then, highly medium-sensitive, with Fairchild's peptone standing out above the others as a differential agent. Grutz' medium and Pennsylvania medium, and possibly Sabouraud's test medium, will fill the requirements, but lemcose and honey medium will not serve.

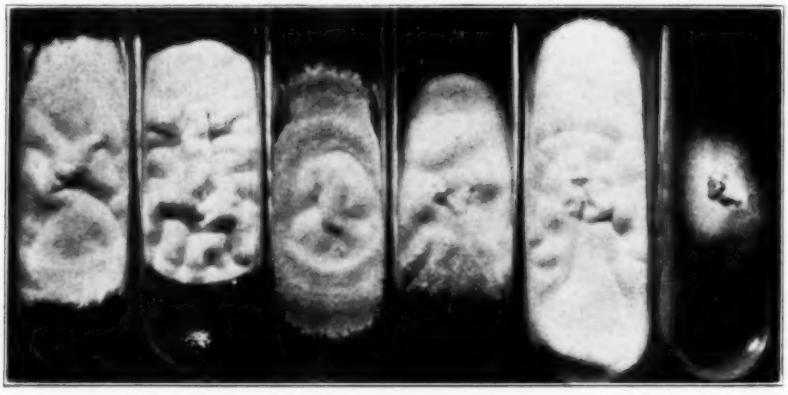

Fig. 12 (experiment 5).—Trichophyton persicolor. Tube 1, Sabouraud's original maltose; tube 2, Sabouraud's honey; tube 3, Fairchild's peptone; tube 4, Grutz' medium; tube 5, Goldschmidt's lemcose; tube 6, Hynson, Westcott and Dunning's malt extract agar. The pink color was strongest in tubes 3 and 4. The series illustrates the inadequacy of substitutes in the identification of some species.

Tr. decalvans: All the colonies showed a distinctive semimoist effect like that of blotting paper in the earlier stages of their development, reminding one of *Tr. acuminatum* but lacking its definite brown color. The differences in final characteristics appeared to be referable to the difference in rate of growth, the more rapidly growing colonies having attained the ultimate white duveteuse type. All things considered, this organism is medium-insensitive, as far as characteristics are concerned, but it lagged on Fairchild's peptone.

Tr. purpureum (two strains): Appearances were the same on all the mediums except that pigment did not develop on Grutz' medium. With this exception, which is a serious one to Grutz' interests, this species is peptone-insensitive.

Tr. nodoformans: The colonies appeared the same on all mediums tested except the honey, on which a deeply wrinkled crater developed. On the whole, this species may be admitted as medium-insensitive.

Endodermophyton tropicale: This species is strictly medium-insensitive. Appearances were the same on every planting.

Microsporon felineum: The only differences in the plantings were in the color. In every case, there was abundant powderiness. On Fairchild's peptone, a strong rosy-pink color was diffused blotchily over the entire slant. On Grutz' medium, the powder was strong canary yellow, and a similar faint canary yellow tinting was noted on Goldschmidt's medium. Pennsylvania medium showed the same kind of café-au-lait powderiness as was seen on Sabouraud's test medium and Sabouraud's honey medium.

EXPERIMENT 6 (Feb. 21, 1928).—*Ammonium Lactate Synthetic Mediums.*—After the encouragement offered by the use of ammonium lactate mentioned in experiment 4, a more systematic set of tests was begun, employing this chemical both alone and in combination with dipotassium phosphate, calcium chloride and iron sulphate. The base formula was as follows:

Formula 1.	Dextrose (chemically pure).....	40 Gm.
	Ammonium lactate	10 Gm.
	Agar	18 Gm.
	Distilled water .....1,000 cc.	

The p_H should be adjusted to 4.7.

Actually, the ammonium lactate was used in four different concentrations (1, 3, 5 and 10 cc. to 1,000 cc. of medium) for the purpose of determining the optimum. To the base formula the following chemicals were added to compose five additional formulas as follows:

Formula 2.	Dipotassium phosphate	1 Gm.
Formula 3.	Calcium chloride	1 Gm.
Formula 4.	No. 2 plus no. 3	
Formula 5.	Iron sulphate	0.1 Gm.
Formula 6.	No. 4 plus no. 5	

Formula 6 thus contained lactate, phosphate, calcium and iron.

The three species of fungus selected as test objects represented: (1) a rapidly growing, luxuriant form, with abundant duvet, which was also a pigment producer (*Tr. purpureum* Bang); (2) a slowly growing, waxy form (*Tr. faviforme ochraceum*), and (3) a microsporon which was also a weak grower (*M. audouini*).

The results were disappointing in that none of the combinations would support the weak growers (*M. audouini* and *Tr. ochraceum*): even after two months there was no more growth than a few wisps of moist mycelium straggling outward from the explant. But results were unequivocal for *Tr. purpureum*. There was abundant color production in all combinations except those containing phosphate, and in the course of time a sufficiency (for diagnosis) of color developed even in the latter. The other morphologic criteria were also satisfactory, such as contour, luxuriance and the quality of the duvet. The formula finally recommended for this organism is as follows:

Dextrose	40 Gm.
Ammonium lactate	10 Gm.
Dipotassium phosphate	1 Gm.
Calcium chloride	1 Gm.
Iron sulphate	0.1 Gm.
Agar	18 Gm.
Distilled water .....1,000 cc.	

The p_H should be adjusted to 4.7.

It is to be understood that this recommendation applies only to *Tr. purpureum.*

Some definite results also appeared in the foregoing species after the cultures had become sufficiently aged (ten weeks). In brief, the cultures which were grown on phosphate tended to develop an abundance of café-au-lait colored powder (spores) that replaced the down (mycelium) of which the colony was composed in its earlier stages. This was more marked on mediums poor in nitrogen; indeed, when 10 Gm. of ammonium lactate had been employed, as in the preceding formula, powder was not visible, whereas on mediums containing but 10 Gm., the entire colony was powdery. As powderiness developed, the strong pink color was replaced by a faint muddy-brown, or even disappeared. These changes were the most clearcut that we have ever seen in systematic fungus culture work; they occurred precisely the same, not only in the duplicate plantings, but in the duplicate series of "bios" plantings. However, one of us has also seen red pigment in spores in hanging drops and is sure that the disappearance of color is not solely referable to the disappearance of mycelium. These observations led to the following conclusions in regard to spores, mycelium and pigment which are responsible for the development of differential characteristics in this and other species.

1. Phosphate is conducive to the development of spores in an increased ratio over mycelium.

2. Excess lactate is conducive to rank growth of mycelium, under which circumstances spore production is reduced and there is no powderiness.

3. The production of pigment was not dependent on phosphorus, calcium or iron. It developed in the presence of simply nitrogen and dextrose. The reason for its discharge in old cultures which were poorer in nitrogen, and which occurred pari passu with the disappearance of mycelium (resorption of cytoplasm), may lie in the cessation of function on the part of the mycelium. Some new order of chemical changes is probably initiated when extensive spore formation begins.

4. A principle governing the onset of the formation of spores (including conidia and fuseaux) may be drawn up; that is, whether spores shall or shall not develop in a colony and lead to the development of a powdery surface. It depends, among other things, on the rate of growth of the colony. As long as the colony grows rapidly and the food reserves are abundant, there will not be any formation of spores. The first business (preparatory) of a colony seems to be to develop mycelium (vegetative function), and this will continue until famine or some other adversity sets in (pabulum used up). Then the reproductive phase is taken care of, and the development of the spores begins. That is, considerations are analogous to the yield of fruit in commercial horticulture; it is possible to have too rich a soil, which will lead to such a rank growth that the full yield of fruit will not be realized. In other words, a little adversity, comparatively speaking, is a good thing for the production of fruit or spores. Sabouraud's peptone formula may thus be viewed as a measure of the food requirements of the different species: too rich for the rankly growing, duveteuse niveum, too lean for the richly spore-bearing gypseum, but just right for, say, *M. lanosum.*

Bios.—On the basis that bios might be necessary to secure growth in these chemically pure mediums, human blood serum (0.3 cc. to each 10 cc. of medium) was added to duplicate sets of each of the formulas previously mentioned and plantings made. With *Tr. purpureum,* the results could not be criticized, the color production being even more intense than with the first set of tests which was so satisfactory. Probably sufficient bios was represented in the explant to account for the success with *Tr. purpureum* as grown on the serum-free series. With *M. audouini* and *T. faviforme ochraceum* the results were no better than when serum had not been used, that is, utter failures.

Results.—The foregoing synthetic formula for *Tr. purpureum*, even employing a "bios," is not sufficient for general use with all of the dermatophyte species. But it may develop that this synthetic formula will be useful in certain restricted groups such as the niveums, in which, indeed, there is peculiar need of a constant medium because there is such variation in morphology.

As long as there is no synthetic medium, all peptones must be tested out as they become available (or any other promising source of nitrogen), and arranged according to their availability for our culture mediums. In this way we shall be prepared against eventualities whereby we might be left without a suitable peptone.

COMMENT, SUMMARY AND CONCLUSIONS

A general survey of the more or less overlapping experiments in part III satisfies us that at present we are in a position of forbearance, working satisfactorily either with Sabouraud's crude dextrose medium or with the Pennsylvania medium, in which an American sample of crude dextrose is substituted. Thus, we still adhere to the use of Chassaing peptone, but would promptly discontinue it on the appearance of any inorganic salt, or, for that matter, any chemically pure organic substance which could be substituted for it and still reproduce Sabouraud's original criteria. As to constancy in composition of the particular brand of crude dextrose which we employ, we wish to report that we use *M. lanosum* as the indicator, tentatively, of its availability. We do not insist on the invariability of this product, but are prepared to admit that we may well err in identification, for instance, between some of the species and varieties as set up by Sabouraud, such as *Tr. asteroides* and *Tr. radiolatum*.

As long as the foregoing state of affairs continues, we cannot see the necessity for switching to the use of Grutz' medium, Goldschmidt's medium, Sabouraud's honey or any other substitute formula.

Possibly an explanation of the discrepancies between this report and the observations of Goldschmidt and Grutz may be found on the basis of the particular series of species which have been tested. Thus, a certain formula might be suitable for the great majority of the dermatophytes and yet fail for the remaining minority. As a matter of fact, this was our experience in the tests of Sabouraud's honey medium; in the first four experiments reported in this paper, the honey medium might have been forced in as an acceptable substitute, but in the last test a species was encountered which did not grow at all well on this medium.

Perhaps the best recent development in the entire ringworm culture situation has been that which originated with Hodges, to the effect that in the event that Chassaing peptone fails there is, in America, a good substitute in the Fairchild brand. A yet further development is the possible application of some of the substitute mediums as special test mediums. This has been set forth in preceding pages, but to make the situation clear, the matter will be expressed synoptically as follows:

1. In *Tr. faviforme ochraceum*, Grutz's medium develops a strong orange-yellow color.

2. In *Tr. persicolor,* Fairchild's peptone brings out a strong pink color.

3. In *M. felineum,* Grutz' medium brings out a yellow color in the powder and Fairchild's peptone a rosy pink in the duvet.

4. Sabouraud's glycerin medium may bring out latent powderiness and radiating qualities.

5. Fairchild's peptone accentuates any tendencies toward pink color which a species may have, and may be employed for bringing this out when working with doubtful species.

As to synthetic formulas, we still look forward to the mycologic millenium when one can employ a medium which can be uniformly and constantly produced at all times and in all places. Ammonium lactate gives promise (it was perfectly successful for one species of dermatophyte), but if it should develop that eventually it seemed impossible to devise a formula which would reproduce the Sabouraud characteristics, we might be forced to such a monstrous act as the abandonment of the Sabouraud system. This resort must be deferred until any proposed formula can establish its title by being fully as differential as Sabouraud's test medium, besides being internationally available and comprised of ingredients which will not vary from year to year.

ABSTRACT OF DISCUSSION

PROFESSOR BLOCH, Zurich: The work done by Dr. Weidman is a painstaking and elaborate study, and it should be useful. Some confusion exists in regard to these matters, and I will tell you a little story. When the war broke out, it was difficult to obtain Sabouraud's medium, especially the crude maltose. Grutz, a German dermatologist who worked in this field, could naturally not import Sabouraud's medium from Paris and, therefore, started to try out new mediums of German origin. As you know, Switzerland was neutral and it was thought the crude maltose could be obtained easily throughout the war, but after a time this became impossible. I wrote to Sabouraud, and he said he could no longer get the maltose himself because it was a German product. The same situation existed with regard to the Sabouraud-Noiré tablets, which are employed in the roentgen-ray measurements. These tablets were always secured from Paris, but during the war it was stated that the firm in Paris bought the tablets in Germany, and they could not be obtained.

All the knowledge concerning trichophytosis is based on the classic work of Sabouraud, which is and will remain the standard work. If the medium is changed, the new cultures cannot be compared with the cultures made by Sabouraud and the wonderful pictures he gave. Therefore, one should be careful and cautious in recommending new mediums. I speak not from the theoretical and laboratory standpoint, but from the practical one. If one finds and cultivates new fungi, one must be able to compare them with the old ones. Without this comparison, great confusion will result. Until now it has always been possible to send cultures to Sabouraud for comparison and classification. He amiably and unselfishly takes the pains to compare with his own cultures those that are sent to him from all over the world, but a time will come when this will no longer be possible. It seems to me absolutely necessary that culture mediums should be internationally standardized, and unless this is done, there will soon be an irreparable international confusion.

Of course, it would be of the greatest value if the crude maltose and crude peptone, which are so different in different countries, could be replaced by definite chemical substances, but this would be only possible and useful if these pure chemical substances would form a medium at least as good as the classic mediums discovered by Sabouraud. This is not the case with honey. I agree with Dr. Weidman that it was a mistake to take honey as a medium. I know of nothing that differs more in different localities than honey, for it differs with the flowers the bees feed on. I came to the conclusion, and I think Dr. Weidman will agree, that an international committee should be founded to decide on standard mediums, which would, perhaps, be the mediums of Sabouraud.

Another point which is even far more important is the foundation of an international mycologic institute with a complete collection of all cultures of fungi known up to the present, and of all histologic and clinical changes produced by the various fungi. Such an institute, especially if it had laboratories and funds at its disposal for experimental and biologic work could render the most valuable services. I do not see why the impetus for the formation of such an institute should not come from this country.

DR. FREDERICK D. WEIDMAN, Philadelphia: I wish to express my appreciation of the great friendliness of Sabouraud. His efforts have been outstanding in every way to facilitate all my work, and I have information from several other sources that he goes far out of his way to help others also in this work.

There are two or three mycologic collections throughout the world. Ota has one in Japan, Karrenberg has one in Hamburg, there is the National Collection of Type Cultures at the Lister Institute in London, and there is one in Chicago at the McCormick Institute for Infectious Diseases.

As to honey, there is a great difference in the composition of different samples. In cherry time, when the bees have fed on the over-ripe cherries that drop on the ground, there is a marked difference in the taste—a mild hydrocyanic acid flavor. In spite of this, it turns out that there is much less difference in the appearance of the cultures on Sabouraud's honey medium than might be expected, less even than with the Grutz formulas. There were only two or three instances of discrepancies in the cultures in our work, which indicate that honey mediums should be condemned.

CULTURES OF RINGWORM FUNGI ON SABOURAUD'S PROOF MEDIUMS AND ON MEDIUMS PREPARED WITH AMERICAN PEPTONES AND SUGARS

A COMPARATIVE STUDY

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The identification and comparative study of species of the ringworm fungi depend largely on the gross cultural characteristics, which may vary greatly according to the mediums used.

With Sabouraud's international proof mediums as standards for comparison, a study was made of other peptones, maltose and dextrose with a view to developing a standard American medium composed of easily procurable and medium priced ingredients.

SUGARS

The observations on maltose and dextrose may be summed up as follows: 1. Chemical examination of the Sabouraud crude maltose and dextrose showed them both to be crude dextrose (glucose), not differing materially in composition from crude American dextrose of low specific rotary power, as manufactured by the complete hydrolysis of cornstarch. 2. Chemically pure maltose as a substitute in Sabouraud's proof mediums affords poor growth and unsatisfactory culture comparisons, whereas the substitution of chemically pure dextrose affords satisfactory growths and comparisons. Substitutes of crude maltose or mixtures of chemically pure maltose and dextrose afford satisfactory comparison with Sabouraud's maltose substantially in proportion as dextrose predominates in the mixture. 3. A comparison of the cultures on the maltose and dextrose mediums in Sabouraud's work "Les Teignes" [1] showed dextrose characteristics on both mediums with comparatively minor differences on the two mediums.

From the foregoing observations the conclusion is reached that dextrose is the sugar of major importance in the Sabouraud maltose and dextrose mediums and that the importance which has generally been attached to the necessity of using some form of maltose has contributed largely to the unsatisfactory results obtained with substitute mediums.

Finally, the entire suitability of the dextrose proof medium is indicated in a communication from Dr. Sabouraud to Dr. Weidman to the effect that the original maltose was no longer obtainable and that the dextrose agar was as useful as maltose agar. American

1. Sabouraud: Les Teignes, Paris, Masson et Cie, 1910, pp. 855.

dextrose, either crude granular or chemically pure, may be satisfactorily used in place of the Sabouraud crude maltose or dextrose.

PEPTONES

A comparative study of Chassaing peptone (French) with five other peptones (Fairchild, Witte, Parke, Davis & Company, Armour and Difco) in dextrose mediums showed that the make of peptone exerts a marked influence on gross cultural characteristics. Of the peptones used those approximating the hydrogen ion concentration of Chassaing afforded better comparison. That these differences may be closely associated with variation in extent of peptic digestion of the protein used and the amino-acid content of the resulting peptone of different brands is indicated by the fact that adjustment of the p_H of medium within the limits from p_H 5 to p_H 7 is, of itself, without effect on the appearance of the cultures.

A high initial p_H and the presence of insoluble proteoses as indicative of incomplete hydrolysis characteristic of Witte peptone appear to be qualities to avoid in the selection of a peptone for use in ringworm mediums. Of the American peptones tried, Fairchild was of the same hydrogen ion concentration as the French Chassaing and afforded cultures in the peptone dextrose medium more closely approximating the Sabouraud proof dextrose medium.

The same make of peptone may vary as to hydrogen ion concentration with resulting slight differences in its composition. Two lots of Chassaing peptone show p_H 4.8 and p_H 5.3, respectively. Differences of the same degree were also noted in two lots of Fairchild peptone. Fortunately, when used in combination with dextrose as in the dextrose proof medium, these slight variations in the peptone do not cause appreciable differences in the cultures. The same is not true of the 3 per cent peptone medium (milieu conservation of Sabouraud), as decided differences in the cultures of some species were observed on the two lots of the same make of peptone. While many species, notably those of the *gypseum* group, are strikingly characteristic on the peptone medium, owing to its variation in composition, its value in differentiating species is to a considerable degree vitiated unless comparisons are made on the same lot of peptone.

The following organisms were used to test the work in which the foregoing results are reported: *Achorion gallinae*, *Trichophyton rubrum*, *T. niveum*, *T. interdigitale*, *T. niveum radians*, *Epidermophyton cruris*, *Microsporon lanosum* and *M. equinum*.

CONCLUSION

In the selection of a suitable medium, three possibilities given in the order of their preference are presented: (1) Sabouraud's dextrose

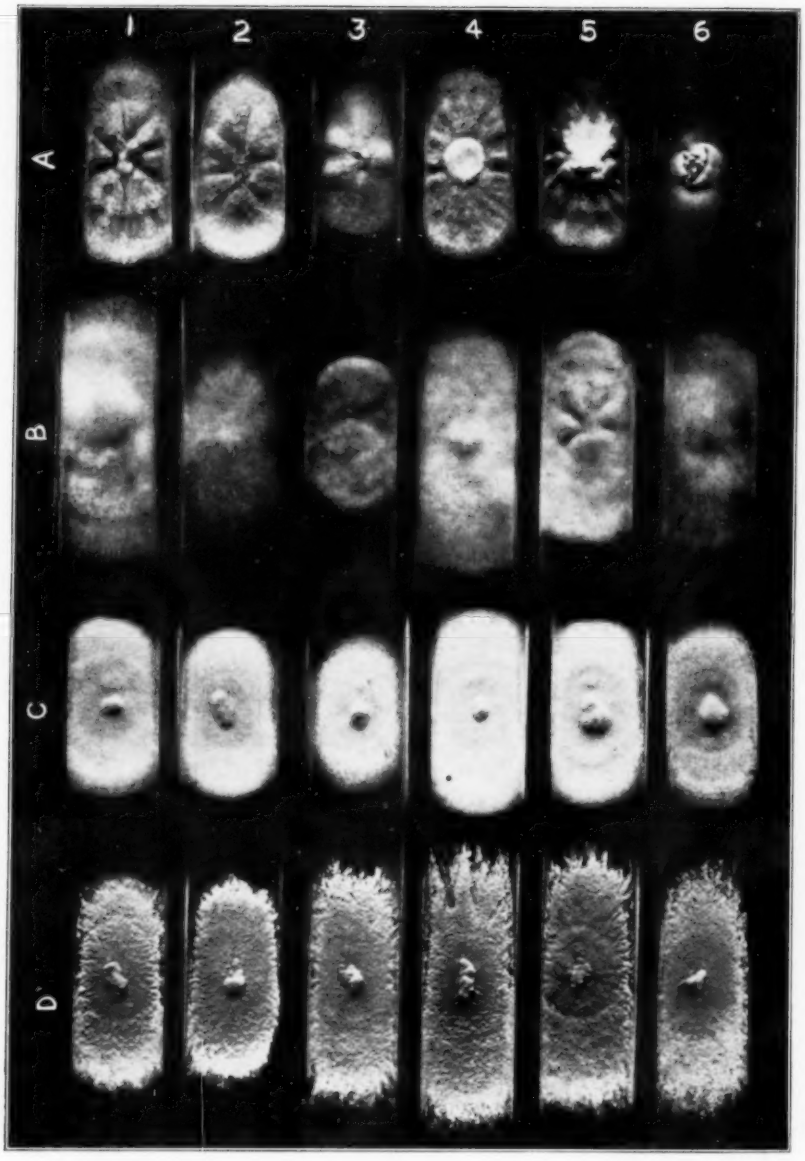

Fig. 1.—Comparative tests of six peptones with the same dextrose. Dextrose, white lump, from Arthur H. Thomas Company was used in all tubes; plants made Jan. 12, 1922, were grown at room temperature. The hydrogen ion concentration was unadjusted. Previous test of Difco peptone not adjusted and adjusted to p_H 5.5 to agree with Sabouraud's dextrose medium did not indicate an appreciable difference in cultures. The numbers represent the brand of peptone used and the approximate p_H medium as follows: 1, Chassaing, p_H 5.5; 2, Fairchild Bros. and Foster, 5; 3, Difco, 7; 4, Parke, Davis & Co., 5.5; 5, Armour & Co., 6.6; 6, Witte, 6.9. *A* indicates cultures on *M. equinum* made on the fourteenth day; *B*, *M. lanosum* made on the eighteenth day; *C*, *T. interdigitale* made on the fourteenth day, and *D*, *M. felineum* (?) made on the twelfth day. All tubes in the same vertical column on the same medium. They represent the most striking results of test on about ten species. The greatest differences were with *Microsporon equinum;* the best comparison was with Fairchild's peptone. Parke, Davis & Co. peptone was next. The Fairchild peptone is slightly more acid than the French Chassaing. Adjustment of the medium to the same p_H as the Chassaing may give a better comparison, although the tests with Difco peptone would indicate that little difference may be expected. Tests on Fairchild's medium adjusted to the same p_H as the Chassaing with sodium hydroxide are in progress. Parke, Davis peptone affords a medium of the same p_H as the Chassaing without adjustment. Witte peptone gave the poorest results. This peptone was preferred by several workers in Europe. Difco peptone affords results only a little better than the Witte. The choice of the most suitable American peptone would seem to lie between Fairchild's and Parke, Davis'. Further tests are in progress on both the sugar medium and the peptone medium (medium of conservation).

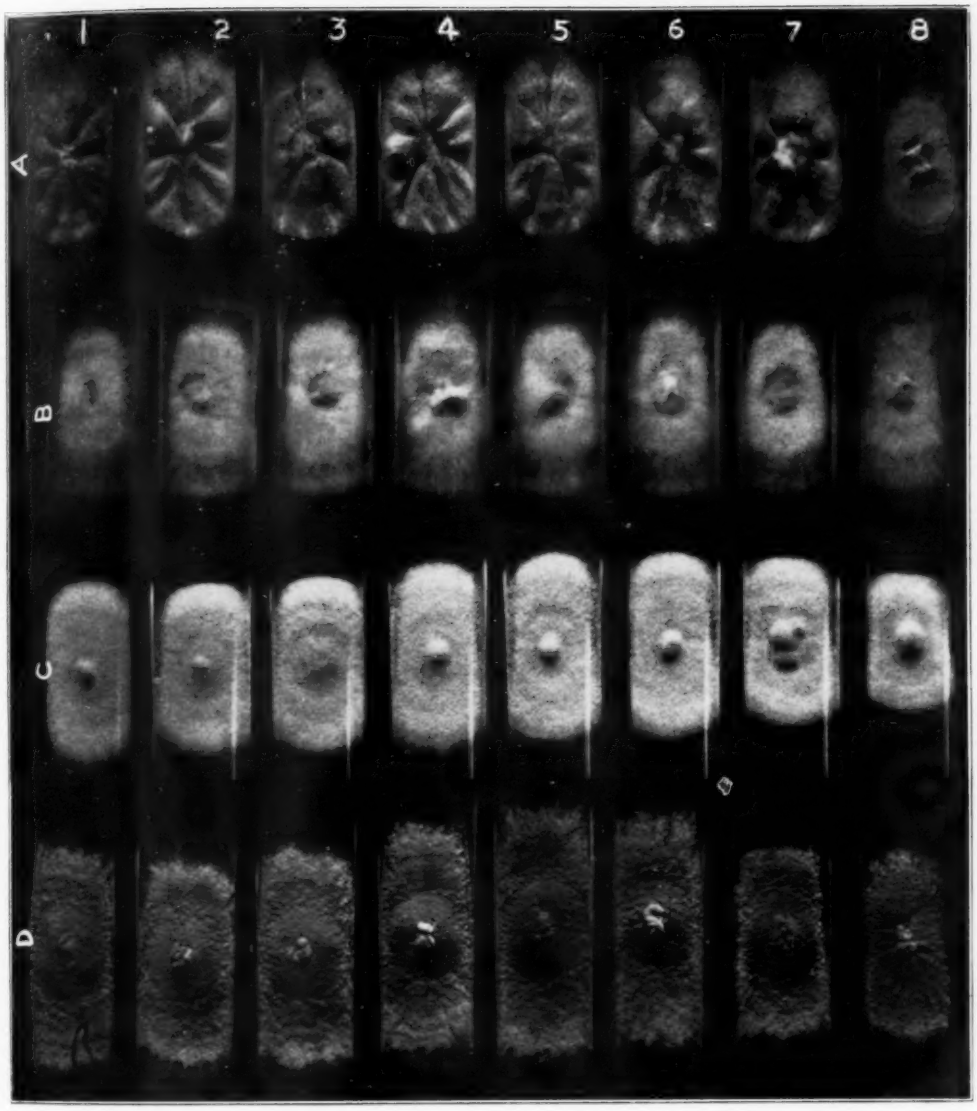

Fig. 2.—A comparison of cultures on mediums prepared with French crude maltose and dextrose and American sugars. Cultures were taken on the fourteenth day. Chassaing peptone was used in all mediums. All cultures were grown under identical conditions. The numbers represent the following: 1, Sabouraud's maltose (Hodges' supply); 2, Sabouraud's dextrose (Hodges' supply); 3, Sabouraud's maltose (Weidman supply); 4, dextrose, dark lumps (Eimer & Amend); 5, dextrose, white lumps (A. H. Thomas); 6, dextrose granular (Henry Heil Chemical Co.); 7, dextrose (Difco), and 8, maltose (Difco). The letters indicate the following: *A, M. equinum; B, M. lanosum; C, T. interdigitale,* and *D, M. felineum* (?). All tubes in the same vertical column are on the same medium. Duplicate plants were made of each species. The results were as follows: *M. equinum.*—The color suggestive of the inside of an orange was about the same on all tubes. Medium 1 gave a little darker culture. This appearance may be partly attributed to the dark color of the Sabouraud maltose medium. With the exception of no. 8 maltose (Difco) identification should not present any difficulty with either medium. *M. lanosum.*—Appearance is the same with all lots of dextrose. Maltose (Difco) is not so good. *T. interdigitale.*—The similarity is good on all; maltose (Difco) gives a slightly smaller culture. The cream color and surface appearance is the same on all. Note that the three on American crude dextrose are slightly larger; this is even more evident in the next set, *M. felineum.* Eight other species were tried, and the results were equally good. The tests would indicate that American dextrose may replace the French maltose or dextrose in Sabouraud's proof medium if Chassaing's peptone is used. Other tests are in progress.

medium prepared with Chassaing peptone and French dextrose as an international standard; (2) the use of American dextrose as a substitute for the French dextrose in a medium using Chassaing peptone, affording cultures not differing materially from those on the French dextrose medium, and (3) an American standard medium: a medium prepared with Fairchild peptone and American dextrose, which satisfactorily meets the requirements, affording good comparisons with Sabouraud's medium, and which is composed of easily procurable and medium priced ingredients.

The importance of whatever slight differences may occur in results secured with Sabouraud's medium as compared with those already recommended is minimized when one considers that variations in cultural conditions may result in greater differences.

The proposed standard American dextrose medium is made up of the following:

Peptone (Fairchild)	10 Gm.
Dextrose (American granular)	40 Gm.
Agar	18 Gm.
Water	1,000 cc.

Preparation of the medium and autoclaving at 120 C. should be according to Sabouraud's method as given in "Les Teignes." Filtration of the medium through cotton cloth is recommended as being quicker and affording equally satisfactory results as filter paper. The hydrogen ion concentration of medium as prepared will be about p_H 5.

A PSEUDOMYCOSIS DUE TO A COCCUS: MICROCOCCUS MYCETICUS

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In certain peculiar conditions clinically resembling a mycosis but microscopically and culturally negative with regard to fungi, I have observed a somewhat peculiar coccus which seems to be the true etiologic agent. It may be of advantage to give first a brief description of the organism.

CHARACTERISTIC FEATURES

Morphologic and Staining Characteristics.—This coccus at times morphologically resembles the gonococcus, at times an ordinary streptococcus. When certain strains are recently isolated, they are practically gram-negative, but after subculturing they usually become gram-positive.

Cultivation and Isolation from the Lesions.—Absence of Growth on Ordinary Agar When Inoculated Direct from the Lesions: The isolation of the organism is rather difficult, as the organism does not grow at first on ordinary agar; agar tubes inoculated with pus direct from the lesions do not show any growth; it grows on certain special mediums, the best apparently being creatinine and uric acid agar, but even on these special mediums, the growth is scanty at first. Later it can be trained to grow on practically all ordinary mediums, including agar, but the growth is always scanty.

Creatinine Agar.—On neutral creatine agar (1 per cent), the growth is fairly visible, though scanty; it somewhat resembles the delicate growth of certain streptococci on ordinary agar.

Uric Acid Agar.—The organism grows on this medium, but more scantily than on creatinine agar.

Growth on Ordinary Mediums.—While the organism apparently does not grow on ordinary mediums (agar and various sugar agars) when these are inoculated direct with material from the lesion, it grows on such mediums, though scantily, when transplanted from creatinine and uric acid agar—and in most cases it can then be made to grow indefinitely provided subculturing is carried out every three days. Sometimes, however, the organism seems to die suddenly, and subculturing will not be successful.

Dextrose Agar.—On acid dextrose agar, as a rule, there is not any growth; on neutral 4 per cent dextrose agar, a scanty growth of the organism may take place, but it is usually extremely poor.

Serum.—A delicate growth is found on serum; liquefaction of the medium does not occur. After several transplantations, the growth is fairly good. A strain which has been grown for months on serum may at times not grow when transplanted on other mediums. I have a strain which has been grown on serum for six months; when transplanted on to agar, it will not grow; and it will not grow even on creatinine agar which, as a rule, is the best medium for isolation of the organism from the lesions. On the whole, serum may be considered the best medium for purposes of transplantation and for keeping the organism alive.

Gelatin.—Liquefaction does not take place.

Sugar Reactions of Micrococcus Myceticus Castellani Strain I and Micrococcus Mycoticus Castellani Strain II *

	Incubation period—days	Motility	Gram	Gelatin	Serum	Dextrose	Levulose	Maltose	Galactose	Saccharose	Lactose	Mannitol	Glycerin	Inulin	Dulcitol	Isodulcitol	Inosital	Adonitol	Arabinose	Amygdalin	Salicin	Sorbitol	Raffinose	Dextrin	Erythrite	Starch	Litmus milk
Micrococcus myceticus Castellani Strain 1.	4	..	+	0	0	As	A	0	As	0	0	0	0	0	0	0	0	0	As	0	0	0	0	As	0	0	As
	14	..	..	0	0	A	A	A	A	0	Avs	0	0	0	0	0	0	0	A	0	0	0	0	As	0	0	A
Micrococcus myceticus Castellani Strain 2.	4	..	+	0	0	A	A	0	A	0	0	0	0	0	0	0	0	0	As	0	0	0	0	0	0	0	As

* A, indicates acid; s, slight; vs, very slight; 0, negative (neither acid nor gas).

Biochemical Reactions.—When the organism has been trained to grow on ordinary mediums, its biochemical properties can be investigated in the usual sugar-peptone waters. In the accompanying table will be found the principal sugar reactions of two strains.

Pathogenicity of Micrococcus Myceticus.—In a volunteer, the subcutaneous injection in the leg of 0.33 cc. saline emulsion of the strain of *Micrococcus myceticus* isolated from the patient produced within a few hours a rather painful, round, red patch the size of a five cent piece, with fever, maximum 102 F., which lasted for twenty-four hours. The patch slowly increased in size, becoming a dark red, until it became more like a rather flat nodule, the center of which slowly softened and spontaneously opened four weeks after the infection; a small sinus formed which took two months to heal.

Animal Inoculations.—The subcutaneous injection into rabbits in the abdominal region slowly produces a localized nodule, which later softens and opens with discharge of pus.

Botanical Position of the Organism.—Is the organism truly a coccus, or might not the coccus-like bodies found in the unopened lesions and in the cultures be in reality the spores of *Nocardia* or *Streptothrix?* In stained preparations from cultures one sees occasionally here and there an individual organism, which is somewhat elongated, almost like a short thick bacillus, but these forms are rare, and I am inclined to consider them degenerative forms of the coccus rather than bacillary mycelial articles of a nocardia, of which they certainly have not the

Fig. 1.—Appearance of lesions in March, 1927; soft, fairly large nodules and sinuses were present.

appearance. Moreover, the cocci, especially in certain mediums (serum), may at times form chains; therefore, the organism for the present might be placed in the genus *Streptococcus.* It differs from the usual streptococci in some cultural characteristics and in the peculiar lesions closely resembling mycotic lesions which it produces in man.

Clinical Conditions Caused by Micrococcus Myceticus.—I have found the organism for some years in certain cases of chronic multiple, slow-developing abscesses somewhat resembling gummas; also in several cases

of a chronic condition clinically resembling a streptothricosis, the skin being thickened and showing several nodules and also sinuses. In the open lesions, staphylococci and many other organisms are found. In the lesions which have not opened, only *Micrococcus myceticus* is found. A patient, observed recently in New Orleans, was sent to me for examination by Dr. Menage.

Fig. 2.—Appearance of lesions in January, 1928.

ILLUSTRATIVE CASE

A working man, white, intelligent, suddenly felt a severe pain in the anterior portion of the lower third of the left leg, close to the ankle, one day at about 11 a. m., five years previous to the present report. He did not think that he had been bitten by any insect. On looking at the part he noticed a red, swollen spot, which rapidly enlarged to the size of a silver dollar. During the afternoon, his temperature began to rise, and in the evening it reached, according to the patient, 104 F.; he felt ill, the spot was somewhat painful, and apparently a lymphangitis developed, the patient noticing a red streak along the leg and thigh. He denied having felt any discomfort in the left inguinal

region. In the morning, about 3 a. m., the patient stated that he began perspiring profusely and that the temperature became normal within a few hours; between 10 and 11 o'clock, about twenty-four hours after the onset of the condition, he called a physician, who incised the swelling; only a little blood was obtained, without pus. Two days after the incision, a second spot appeared, about 1 inch (2.54 cm.) from the first one, which the patient described as being dark red with a violaceous tinge and which was painful on pressure. Three days later it was opened, and a minute amount of pus was found. Six days after the appearance of the second spot, a third spot developed, about 4 inches (10.16 cm.) above the second one. For the next two months, several spots appeared near the original lesion; each of them was opened.

Since then, according to the patient, one spot or nodule has appeared every two or three months. Some of them were opened; others burst spontaneously.

When I first saw him (March, 1927) the skin of the whole of the lower third of the leg was thickened; several nodules, some gumma-like swellings and a few sinuses were present; the pus did not contain granules. Clinically, the condition had the appearance of a mycotic lesion, but fungi were not found.

Cultures from the sinuses and open lesions showed the presence of *Staphylococcus aureus* and *Staphylococcus albus* in large numbers. Cultures, using the special mediums already mentioned, from the pus collected aseptically from the lesions which had not opened, showed the presence of *Micrococcus mycoticus* in pure culture.

Treatment.—Potassium iodide even given in full doses did not have any effect. Local treatment by various disinfecting lotions, by ointments and paints was not of any advantage except in keeping in check the secondary infections. A vaccine prepared with various strains of *M. mycoticus* was most useful, and at the present date (April, 1928) practically all the nodules have disappeared.

CHRYSODERMA

A PERMANENT GOLD STAINING OF THE SKIN *

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PHILADELPHIA

I desire to place on record what appears, as far as I have been able to ascertain, to be a hitherto undescribed staining of the skin with gold following the therapeutic administration of this metal.

A woman, aged 45, suffering from lupus erythematosus of twelve years' standing, received ten injections of a gold compound, with some improvement; after the last treatment, she developed an erythematosquamous dermatitis. She later consulted me, and, owing to her apparent hypersusceptibility, I advised her physician to use a special form of colloidal gold which Mr. H. Brown had prepared in our Research Institute. This preparation is tolerated in white rats in the huge dosage of from 200 to 300 mg. per kilogram, whereas sodium aurothiosulphate is barely tolerated in 35 mg. per kilogram.

One injection was successfully administered by her physician. When the second dose was given, the needle slipped outside the vein, and in a few days an extensive greenish-blue discoloration became apparent (fig. 1). This discoloration has not undergone any change in the past six months, despite various efforts to effect its disappearance. The color is between a greenish blue and an indigo blue. The patient has been greatly perturbed over this disfiguring staining of her arm.

ANIMAL EXPERIMENTS

In order to throw some light on the pathogenesis of this staining, I injected gold solutions extravenously into the ear of three white rabbits.

Rabbit 1 received sodium aurothiosulphate. This rabbit failed to show any evidence of discoloration during a period of observation of three months.

Rabbit 2 received an injection of the colloidal gold solution [1] identical with the one which had caused staining in the human subject. Within ten minutes, without apparent inflammation, the external and internal surface of the ear assumed an indigo colored stain which remained unaltered for a period of three months.

Rabbit 3 received an injection of colloidal gold reduced with solution of formaldehyde (the type used in the colloidal gold test). This animal showed an indigo blue staining indistinguishable from that observed in rabbit 2.

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* Read before the Fifty-First Annual Meeting of the American Dermatological Association, Washington, D. C., April 30, May 1-2, 1928.

1. This solution is a colloidal gold protein protected with casein.

UNIV. OF MICH.

Fig. 1.—Extensive greenish-blue discoloration on arm of patient after injection of colloidal gold.

COMMENT

Numerous intravenous injections of colloidal gold have been employed and staining of the skin has never been observed. It would appear, however, that if the fluid is deposited outside the vein, discoloration is apt to result.

The experimental extravenous injection of sodium aurothiosulphate did not result in staining of the skin. In all probability this compound acts in the tissues in a different manner. Many thousands of intravenous injections of gold and sodium thiosulphate must have been given in the United States during the past year. It is extremely probable that in some of the cases the needle must have gotten outside the vein, for the absence of such an accident, among thousands of injections, is scarcely conceivable. In a large correspondence with physicians concerning injections of colloidal gold, I have not heard of staining occurring from the use of this compound.[2]

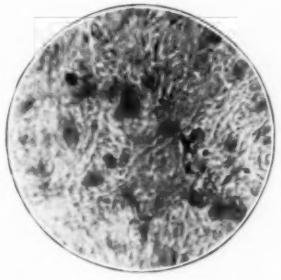

Fig. 2.—Section of skin of rabbit stained with hematoxylin-eosin, showing gold granules; × 800.

The use of colloidal gold is advocated in the treatment for cancer and certain other conditions. Therefore, the caution implied in this communication is of more than academic interest.

MICROSCOPIC STUDY

A piece of the discolored skin of the rabbit's ear was excised for microscopic study. Unstained and stained sections were examined. In unstained sections, distinct dark brownish granules, varying from 1 to 3 inches (2.5 to 7.6 cm.), were visible.

2. During the presentation of this communication before the American Dermatological Association in Washington, in May, 1928, in discussion Dr. Culver stated that he had observed a bluish punctate tattooing at times at the site of the cutaneous puncture over the vein. I stated that I had not seen this, but a few days later I observed a patient exhibiting punctate bluish stains looking like powder marks. It would appear, therefore, that if the gold and sodium thiosulphate solution is deposited in the skin proper, bluish staining is possible. One should always wipe the needle dry before inserting it into the skin.

Sections stained with hematoxylin and eosin gave a better idea of the distribution of these granules in the skin. Dark brownish particles were seen in the connective tissue stroma and in the cells. Most of them were lodged in the cytoplasm of the subcutaneous connective tissue cells. A few were noted in the nuclei. A few particles were observed in the epithelial layer of the skin, mainly in the rete mucosum. These differed from the melanin pigment granules present in the basal layer by being coarser and more irregularly distributed. The granules were best seen in sections stained with weak picric acid.

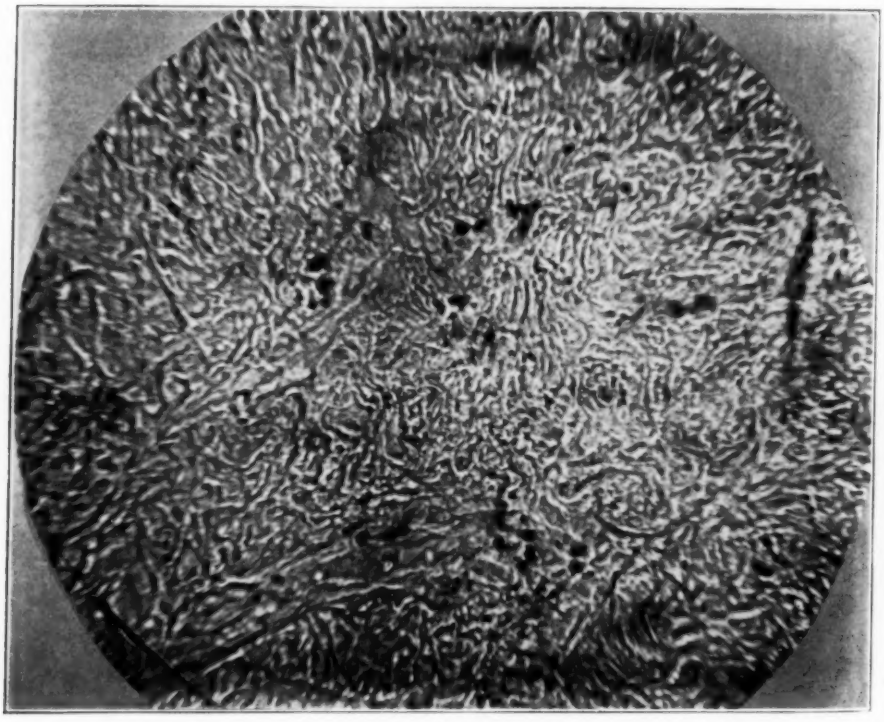

Fig. 3.—Section of skin of rabbit stained with 0.5 per cent picric acid solution, showing gold granules; × 800.

ABSTRACT OF DISCUSSION

Dr. John H. Stokes: I would like to hear Dr. Stillians express an opinion as to whether his local treatment for argyria would be applicable to this type of discoloration from the leakage of gold sodium thiosulphate into the skin.

Dr. Ernest L. McEwen: How long an interval was present between the injection and the appearance of the green tint? Also, did it bear any relation to the exposure to light?

Professor Bloch: I should like to call attention to only a few facts. I think the only thing that is certain about the gold treatment is that since it has been employed the prognosis of lupus erythematosus has improved. That, of course, is

the most important thing for our patients and for ourselves. All the rest, I think, are questions to which the answers are not known. First, how do these gold compounds act in lupus erythematosus? I am a strong partisan of the theory of the tuberculous origin of lupus erythematosus. All the experiments with gold in tuberculosis are based on the fact discovered by Koch that small traces of gold destroy tubercle bacilli in culture. Nevertheless is would not occur to me to use the cure of lupus erythematosus by gold compounds as an argument in support of this theory. If the cure of lupus erythematosus were due to the destruction of the bacilli, other tuberculous conditions of the skin, such as lupus vulgaris, for instance, would be benefited by the same therapy. But this is not the case.

The figures given by Dr. Schamberg regarding the varying gold content of the different organs after injection and the different toxicity of various gold preparations can only be applied with great precaution to the therapy of lupus erythematosus in human beings. There are two principal reasons for this:

1. As Ehrlich has shown, the dosis toxica alone does not determine the usefulness of a certain medicament in a definite disease, but the proportion of the dosis curativa to the dosis toxica (letalis) does determine it. In this connection it is important to know that one can cure persons with lupus erythematosus with infinitely smaller doses of 4 amino-2 auro-thiophenol carbonic acid than of "sanocrysin" (sodium aurothiosulphate).

2. Many of the pathologic symptoms occurring after treatment with colloidal gold are not simple pharmacologic effects of the gold, but are allergic phenomena. They are therefore to a great degree independent of the quantity of the administered gold, but are dependent on the idiosyncratic reaction of the patient. This idiosyncratic factor cannot be determined by animal experiments. Basing the statement on my own experience, I can say that "sanocrysin" produces at least as many idiosyncratic reactions in human beings as amino-aurothiophenol carbonic acid does.

It is remarkable that Dr. Schamberg did not find gold in the brain in his investigations—this could be interpreted as demonstrating that gold has no affinity for the nervous tissue. Nevertheless, gold is by far the best agent for demonstrating the nervous system of the epidermis. The nervous system of the epidermis (Langerhans' cells and nerve fibers) is demonstrated by this method far better than by any other. The method used is a modification of one discovered by Cronheim in 1868. It is extremely difficult and delicate, and as yet is not perfect by any means.

The first to employ gold preparations in the therapy of lupus erythematosus was Martenstein, and the preparation he used, and which is still used in Europe, is amino-aurothiophenol carbonic acid (krysolgan). It was an interesting fact for me to note when I came to this country that the sodium aurothiosulphate of Dr. Schamberg is mostly used, and, as it seems, with good results. In consideration of the great importance of this new treatment and of its possible harmful effects, it would be desirable to make a comparative statistic study of the effect of the various preparations. This, of course, can be done only by observing the results of the treatment of a great number of patients.

DR. HERMANN GOLDENBERG: The second part of the comparative table of the excretion of gold through the spleen was specially interesting to me and has given me a probable explanation of an experience which I had in the treatment of a patient with lupus erythematosus. The patient was a young girl suffering from a cytopenic purpura for which the spleen was removed. She subsequently developed lupus erythematosus and was treated with injections of colloidal gold. In no other

case have I encountered such a marked hypersensitiveness of the skin to gold as in this case. The smallest amount, less than 5 mg., generally produces a skin eruption. This may be due to a compensatory excretion of gold through the skin in a patient in whom the other organ, for which the gold has a predilection, that is, the spleen, has been removed.

DR. WILLIAM H. GUY: I wish to cite particularly a case which Dr. Schamberg included in one of his communications. It was that of a patient with lupus erythematosus of the face, who, following gold therapy, developed an eruption simulating lupus erythematosus disseminatus, and in whom the exhibition of sodium thiosulphate led to disappearance of the generalized eruption. A 5 mg. dose later caused a recurrence of the eruption. In two other cases in which a toxic erythema of the palms existed, one showing elevation of temperature and the development of a more or less generalized eruption, with the patient confined to bed for a week, the same thing held true. In such instances what course should be pursued? Is one justified in the exhibition of the drug again after such toxic manifestations?

DR. ARTHUR W. STILLIANS: Replying to Dr. Stokes, I would think that there was hope from this procedure.

DR. FRED WISE: Dr. Schamberg mentioned a refractory case. Has he used silver arsphenamine as an alternative treatment, and if so, what have been his results?

DR. GEORGE D. CULVER: We have much to thank Dr. Schamberg for in following his treatment for lupus erythematosus with gold. It has been my experience that, in many cases, a small tattoo mark is left at the point of the insertion of a steel needle in using gold and sodium thiosulphate. This can be avoided by the use of an iridoplatinum needle.

DR. SCHAMBERG: Answering Dr. McEwen as to the influence of light on the development of the staining of the skin, there is no evidence that light has been a factor. While the animals have not been excluded from light, they were in cages in which they received dull, diffuse daylight.

Professor Bloch's remarks are interesting, particularly in reference to staining the nervous elements of the skin with gold; my associates and I shall endeavor to see whether animals which receive the extravenous injections of gold show any staining of the fibers.

We did not intend to suggest at all that gold and sodium thiosulphate is the only available or efficient preparation in the treatment for lupus erythematosus. The continental workers have for years had various preparations. We have made a comparative study of the toxicity of some of these preparations in animals, and have found that amino-aurothiophenol carbonic acid (krysolgan) is tolerated in the white rat intravenously in doses of 20 mg. per kilogram and gold and sodium thiosulphate in about 35 mg. The content of gold in the amino-aurothiophenol carbonic acid is somewhat greater, but even with this correction, gold and sodium thiosulphate is a better tolerated preparation. The maximum tolerated dose in the rat is greater. It might be a useful procedure if one could study a parallel series of cases in which the different gold preparations were used, but then the result would doubtless be confused by the fact that every case of lupus erythematosus is a rule unto itself.

With respect to Dr. Guy's query, I would say that there is no patient who cannot take gold, just as there is none who cannot take arsphenamine. It is a ques-

tion of administering a small enough dose. I think that if one begins with 1 mg. and gradually increases the dosage, any patient can be made to tolerate an adequate dose.

Replying to Dr. Wise, we have not used silver arsphenamine in lupus erythematosus. The first product we used was gold arsphenamine, made for us by Dr. Raiziss. At first we had favorable results from this preparation, but later we had some undesirable reactions. The patients do better therapeutically with the gold and sodium thiosulphate than with gold arsphenamine.

In regard to Dr. Culver's statement, I presume that the tattoo mark is due to the fact that a drop of gold solution is present on the needle when it is inserted into the skin, where it is deposited. If care is taken to remove that drop from the needle, this should not occur.

Regarding Dr. Goldenberg's question as to the intolerance of a splenectomized patient, it may have a significance, but it may also be merely a coincidence. Dr. Stokes mentioned a patient who could not tolerate even small doses of gold; I think that there should be an accumulation of such cases before any deductions could be drawn.

URTICARIA

III. EXPERIMENTAL URTICARIA FACTITIA *

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The term "urticaria factitia" is applied to wheals produced on the skin by local physical or mechanical irritation, such as stroking, scratching, rubbing and other forms of irritation, either in urticarial patients or in persons who possess "an irritable or susceptible skin." These wheals are limited to the site of the trauma, and are in reality amplified dermographic impressions which have been made on the skin.

The expressions "dermographism," "autographism" or "dermographic urticaria," although originally applied to wheals induced by traumatizing the skin in nervous and hysterical patients, are today almost universally employed as terms synonymous and interchangeable with urticaria factitia, and are so used in this paper.

Dermographism is a frequent accompaniment of urticaria and may persist long after the urticaria has gone. It may, however, occur alone or occasionally in association with pruritus, and its discovery may only be accidental.

The old teachings (still adhered to by some textbooks on modern dermatology) that the dermographic wheal was a physical phenomenon, the result of an angioneurosis producing vascular constriction and dilatation, and followed by an exudation of serum, is at present untenable, in the light of recent histologic and experimental studies. The experiments of Müller,[1] Ebbecke,[2] Carrier,[3] Lewis [4] and M. Walzer and myself [5] speak against the reaction being physical or dependent

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* Read before the Section on Dermatology and Syphilology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

* From the Department of Dermatology and Syphilology, Good Samaritan Dispensary, New York, and the Jewish Hospital of Brooklyn.

1. Müller, L. R.: Studien über den Dermographismus und disser diagnostische Bedeutung, Deutsche Ztschr. f. Nervenh. **47-48**:413, 1913.

2. Ebbecke, U.: Die lokale vasomotorische Reaktion (L. V. R.) der Haut und inneren Organe, Arch. f. d. ges. Physiol. **169**:1, 1917.

3. Carrier, E. B.: Studies on the Physiology of Capillaries: V. The Reaction of the Human Skin Capillaries to Drugs and Other Stimuli, Am. J. Physiol. **61**:528, 1922.

4. Lewis, T.: The Blood Vessels of the Human Skin and Their Responses, London, Shaw & Sons, 1927.

5. Walzer, A., and Walzer, M.: Studies in Urticaria. I. Wheal Production Through Internal Channels, Am. J. M. Sc. **173**:279, 1927; Urticaria: II. The Experimental Wheal Produced on Normal Skin Through Internal Channels, Arch. Dermat. & Syph. **17**:659 (May) 1928.

solely on a nervous mechanism. Besides, Gilchrist,[6] supported by Hodara,[7] definitely demonstrated the inflammatory nature of the factitious wheal.

The conception that generalized dermographism is due to a constitutional cause, as a toxic substance circulating in the blood is not new. Gilchrist,[6] in his histologic studies of the dermographic wheal, concluded that the wheal is the result of an acute inflammatory change resulting from some toxin in the circulation. Török, Lehner, and Kenedy [8] reached practically the same conclusions.

That dermographism may, however, be purely a localized phenomenon of the skin with no possible internal basis, was demonstrated by M. Walzer and myself in a previous communication.[5] We showed that stroking some of the sites of previous experimental wheals reproduced wheals at those sites a few days later. Similar trauma, applied to any other part of the surface of the skin at the same time, resulted only in the usual erythematous response, demonstrating the fact that the reaction was purely a local one.

Fülleborn,[9] working with strongyloid larvae, reported similar experiences. He found that wheals resulted from the penetration of the larvae into the skin. Stroking these particular areas, within two or three weeks after the wheals had gone, he also elicited wheals at these sites.

Bettmann [10] recently demonstrated urticaria factitia over tattooed areas in a series of about forty-five patients. These subjects were not dermographic, and never had any urticaria. Rubbing or stroking the tattooed areas reproduced the outlines of the tattooed figures in wheals and without pruritus. The author did not attempt to explain this phenomenon. We have been able to corroborate this observation a number of times.

There has been a tendency recently, and this is especially exemplified by the writings of Lewis [4] and Krogh,[11] to place dermographism in

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6. Gilchrist, T. C.: Some Experimental Observations on the Histopathology of Urticaria Factitia, J. Cutan. Dis. **26**:122, 1908.

7. Hodara, M.: Untersuchungen über die Histologie der Urticaria Factitia (Dermographismus) und der Urticaria chronica, sowie über die Mastzellen bei beiden Affektionen, Dermat. Wchnschr. **57**:971, 1913.

8. Török, L.; Lehner, E., and Kenedy, D.: Untersuchungen über die Pathogenese und pathologische Anatomie der Urticaria, Arch. f. Dermat. u. Syph. **139**:141, 1922.

9. Fülleborn, F.: Spezifische Kutanreaktionen bei Infektion mit Strongyloides und anderen Helminthen, Arch. f. Schiffs-u. Tropen-Hyg. **30**:732, 1926.

10. Bettmann, S.: Schwellungsreaktionen und Tatuierungen und ihre Registrierung, Dermat. Wchnschr. **84**:1, 1927.

11. Krogh, A.: The Anatomy and Physiology of Capillaries, New Haven, Yale University Press, 1922.

the line of normal or rather exaggerated normal reactions of the skin to injury. Lewis said:

> Amongst young and perfectly healthy people whealing of skin as a sequel to firm stroking is by no means infrequent; a detectable swelling is found in about a fourth of those tested and in about 5 per cent a conspicuous wheal is produced. A little whealing in response to stroking is frequent, if not the rule, in children.

Both Krogh and Lewis said that a wheal may be produced on the skin of the back of almost any normal person by repeated stroking over the same site.

IS DERMOGRAPHISM AN EXAGGERATED NORMAL PHENOMENON?

In order to be able to decide this question the skin of the backs of forty-eight subjects was stroked. These were all taken at random

TABLE 1.—*Results of Producing Dermographic Reactions in Forty-Eight Subjects*

Group I			
Disease	Cases Tested	Positive	Negative
1. Acne (face)	2	..	2
2. Eczema (face), mild (infants)	5	1	4
3. Verucca (hands)	3	..	3
4. Pediculosis capitis	1	..	1
5. Psoriasis (only knees and elbows)	3	1	2
6. Dermatophytosis, (hands and feet)	24	3	21
7. Seborrhea (scalp)	2	2	..
8. Alopecia areata (scalp)	2	..	2
9. Folliculitis (neck)	3	2	1
10. Dermatitis (forearm)	1	..	1
11. Erythema (hands)	1	1	..
12. Dermatitis solaris (face)	1	1	..
Total	48	11	37

Group II			
Disease	Cases Tested	Positive	Negative
1. Urticaria	5	5	..
2. Popular urticaria	3	2	1
3. Pruritus, generalized (no lesions)	5	4	1
Total	13	11	2

from the general run of cases in a dermatologic clinic, and showed the mildest of conditions of the skin which in no way interfered with the test, as group I of table 1 will show. As controls, thirteen subjects with urticaria and pruritus were stroked, as shown by group II, table 1.

It will be noted that in group I, consisting of forty-eight subjects, eleven gave positive reactions, or about 23 per cent responded with a wheal after from about eight to twelve consecutive strokes over the same area. All the wheals were mild, some extremely so, and could barely be felt rather than seen. The surrounding erythema in these cases was not pronounced, and in some instances was a narrow band. The best reaction was not any too prominent.

Group II was composed of patients with urticaria vulgaris or the common type, papular urticaria, and pruritus apparently of internal origin. There were thirteen patients in this group, of which eleven, or 84 per cent, responded with a wheal only on a single stroke. The remaining two subjects, a child with papular urticaria and an adult

with pruritus without any cutaneous lesions, did not show wheals even on repeated stroking.

It will be noted that the figures of the first group check up closely with those of Lewis in that in about 25 per cent of normal persons a "detectable swelling" is noted after either firm or repeated stroking. The reactions of this group, however, could hardly be compared in their general appearance to those of the other group; for every positive reaction in group II consisted of wheals which were large, elevated and distinct, and which often extended beyond the traumatized area. The surrounding erythema was extensive and was observed in many of the reactions for quite a distance away from the wheal. The poorest reaction of this group was much more pronounced, and incomparable with the best of the previous group.

In view of the fact that about 75 per cent of the subjects in group I did not demonstrate dermographism to the slightest degree, even after repeated trauma, it does not seem reasonable to consider the remaining 25 per cent that did as subjects with exaggerated normal response. It would seem to be more in keeping with the facts to call the 25 per cent of the subjects with positive reactions abnormal, and the 75 per cent with negative reactions, normal. These experiments, as well as those on the factitious wheal, which will be given later, have convinced me that dermographism is neither a normal phenomenon nor a necessarily exaggerated normal physiologic reaction of the skin to injury. I am more inclined to the view that the presence of dermographism indicates some general internal pathologic process.

THE PRINCIPLE OF EXPERIMENTAL WHEAL PRODUCTION THROUGH INTERNAL CHANNELS

In previous communications,[5] a method was demonstrated for the experimental production of constitutional wheals of hypersensitive urticaria on normal subjects through internal channels. It was shown that certain patients with food hypersensitiveness possessed a definite principle (reagins) circulating in their blood. By intradermal injections of the serums of these patients, the reagins (specific sensitizing bodies) could be transferred to sites on the skin on normal persons, where they remained temporarily fixed. A wheal could then be induced at these passively sensitized sites by the same causative factor and through the same route as that operative in the patient, namely, the ingestion of the specific offending food, its absorption in an unaltered state from the digestive tract, and its deposition by the circulation at the passively sensitized site.

In connection with these studies, the question presented itself whether, in patients with generalized urticaria factitia, there also existed a circulating causative principle in the blood which might be demon-

strated by a method similar to the one employed. In other words, could urticaria factitia be experimentally produced by injecting the serum of a dermographic patient into the skin of a normal person, and then stroking these sites of injection? An attempt to transfer dermographism had been made previously by Duke,[12] but by a different method. His tested subject was a patient with pernicious anemia, who had been transfused with the blood of a person with dermographism. He did not succeed in inducing any dermographism in his patient. This subject will be discussed again later.

DERMOGRAPHIC RESPONSES OF SITES OF INJECTION OF NORMAL SERUM

Before beginning these experiments, the dermographic response of areas of normal skin into which had been injected normal human blood serum had to be determined. On repeated intradermal injections of blood serums obtained from many normal persons into normal subjects, no change was noted in the dermographic reactivity at the sites of injection when they were later tested. In other words, intradermal injection of the human blood serum of normal persons does not produce changes in the traumatic response of the sites of injection.

EXPERIMENTS ON DERMOGRAPHISM WITH SERUMS OF ABNORMAL SUBJECTS

Source of the Serums.—The serums of twelve patients were employed for these tests. Dermographism was present in ten to a marked degree, two of whom also showed lichenoid lesions, scattered and in patches. The remaining two, while they did not demonstrate dermographism, were extreme examples of lichenoid dermatitis. The rationale for the employment of their serums will be noted presently. All of these patients complained bitterly of intense itching; this was especially true in patients with the lichenoid lesions.

The cases included five males and seven females, ranging in age from 9 to 60 years. Dermographism had been present from about four days to nine years. The details of these patients are listed in table 2.

Obtaining and Preparing the Serum.—Venous puncture was performed under the usual aseptic precautions, and about 20 cc. of blood was obtained. It was defibrinated by whipping, and was then rapidly centrifugalized. The serum was removed and passed through a Berkefeld filter for sterilization. It was used in full strength in all the experiments.

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12. Duke, W. W.: Allergy, Asthma, Hay Fever, Urticaria, and Allied Manifest Actions of Reaction, ed. 2, St. Louis, C. V. Mosby Company, 1926.

Preparation of the Sites for Testing on Normal Persons.—The subjects selected for these tests were about sixty persons in whom a red line appeared after forcible stroking of the skin (normal response), and a few who had a fairly marked dermographism on similar stroking. The anterior surface of the arm or forearm was utilized for these injections. In some of the subjects, however, the injections were made on the anterior or posterior surface of the chest. Each of the serums was injected into at least five or six different persons, and occasionally, the same subject was utilized a number of times for the different serums.

TABLE 2.—*Patients Whose Serums Were Employed for Dermographic Tests*

No.	Name	Age	Symptoms	Duration	Diagnosis
1	C. H.	34 yr. male	Patches of erythema, wheals, marked pruritus and marked dermographism	13 mo.	Chronic urticaria (unknown etiology)
2	M. G.	30 yr. female	Patches of erythema, wheals, marked pruritus and marked dermographism	10 mo.	Chronic urticaria (unknown etiology)
3	S. H.	49 yr. male	Patches of erythema, wheals, marked pruritus and marked dermographism	8 yr.	Chronic urticaria (unknown etiology)
4	F. F.	37 yr. female	Erythema, wheals, marked pruritus and dermographism	4 days	Acute urticaria (etiology, pork and beans)
5	D. B.	32 yr. male	Erythema, wheals, marked pruritus and dermographism	1 yr.	Chronic urticaria (unknown etiology)
6	B. G.	34 yr. female	Erythema, wheals, angioneurotic edema, marked pruritus and dermographism	2 yr.	Chronic urticaria (unknown etiology)
7	A. R.	43 yr. female	Pruritus and factitious urticaria.....	9 yr.	Urticaria factitia (unknown etiology)
8	B. S.	25 yr. female	Pruritus and factitious urticaria.....	Many mo. (?)	Urticaria factitia (unknown etiology)
9	L. W.	60 yr. male	Generalized pruritus, erythema, scattered flat shiny lichenoid papules; white line on stroking; no wheals	9 mo.	Chronic lichenoid dermatitis (unknown etiology)
10	S. A.	38 yr. female	Generalized pruritus, erythema, scattered flat shiny lichenoid papules; white line on stroking; no wheals	1 yr.	Chronic lichenoid dermatitis (unknown etiology)
11	S. M.	9 yr. female	Erythema, wheals, and many scattered lichenoid papules; pruritus and marked dermographism	6 yr.	Lichen urticatus or chronic urticaria with lichenoid dermatitis (unknown etiology)
12	B. R.	History and complete description of lesions in text			

Employing the same technic as in intradermal testing for hypersensitiveness, a series of from two to five parallel rows of injections was made, each row consisting of from three to five sites, about 1 cm. apart. From 0.05 to 0.1 cc. of serum was injected at each site.

Immediately following the injection of the serum, a small pinkish-white edematous elevation resulted. The edema completely flattened out in about thirty minutes, but the erythema persisted in some instances for twenty-four hours. The entire treated area was marked off with ink at the time of injection.

Traumatizing the Sites of Injection.—Since some of the sites showed a faint erythema for twenty-four hours after the injection, tests were

not performed until after forty-eight hours. At that time, the areas of injection were practically normal in appearance, with the exception of the presence of faint, erythematous points at many of the sites where the needle had pierced the skin.

A number of heavy strokes or rubs were made with a blunt object across this area of skin, either directly over the sites of injection or between them. In some cases, stroking was done only in one direction, while in others cross-stroking was used.

Reactions at the Sites of Injection Following Traumatization.—The intradermal injections of the serums of eleven of the patients did not produce any changes in the dermographic response of the areas of injection following trauma. Even in those subjects who were themselves dermographic, the traumatic response of those sites were practically the same as that of the control locations. Only one serum of the twelve serums, that of patient B. R. (no. 12, table 2), modified the dermographic response of the areas of injection in such a manner that factitious wheals were produced at these sites in a majority of the subjects on traumatization of the areas into which had been injected the serum of B. R. In other words, a dermographic state was produced on the skins of nondermographic subjects, with the serum of only one of the ten markedly dermographic patients.

Patient B. R., whose history will be presented in detail, was recorded as suffering with urticaria, dermographism and lichenoid dermatitis. Of the other patients studied in this series, only one, a child (case 11, table 2), presented almost the same symptoms dermatologically, though clinically, the two were not identical. Patients 9 and 10, although they manifested no wheals or dermographism, were included in the present studies, because they resembled B. R. in the marked pruritus and lichenoid lesions. The negative results with these serums ruled out these factors as responsible for the dermographism-inducing principle in the serum of B. R.

REPORT OF CASE

History.—B. R., a man, aged 40, married, a tailor, said that the only manifestation of hypersensitiveness in his family was hay-fever in a cousin. There was nothing in the past history of any importance.

When 25 years of age, or fifteen years before the present illness, he had had an attack of what he described as "itch and swellings" over the entire body. The condition had lasted from seven to ten days, and then had completely disappeared. With the exception of an occasional cold, he had been practically well till the onset of the present condition.

Course.—About four and one-half years ago, "pimples" about 0.5 cm. in diameter, had first appeared on the abdomen, and had gradually spread to the entire body. They were extremely pruriginous. Some of those disfigurations partially subsided, leaving small, slightly elevated, itchy, flat "pimples"; others disappeared completely, while some left brownish pigmented spots. A certain

number, however, left scars with dark brown pigmented borders. New lesions constantly reappeared in crops and intermingled with the partially or completely healed ones.

In some locations, especially on the lower part of the abdomen and on the thighs, large, palm-sized, pruriginous "swellings" formed. They lasted about twenty-four hours and disappeared, leaving light brown pigmentation. New "swellings" constantly reformed, all regressing in the same manner.

There was another peculiar symptom. When the patient rubbed or pinched any part of the body with his left hand, a peculiar click, like the sound of a spark of electricity, was noted. This condition had persisted ever since the development of his illness, and had been observed by other dermatologists who had seen the patient at various times during his illness.

He said that he had been to many New York dermatologic clinics, and had been subjected to all sorts of examinations, including studies of the blood and urine, x-rays examinations of various parts of the body, tests for hypersensitiveness and other tests, but nothing unusual had been discovered to explain the condition of his skin. He had submitted himself to numerous therapeutic measures, including roentgenotherapy, ultraviolet therapy, internal and local medication, intravenous and intramuscular injection, diets, autohemotherapy, removal of infected teeth and other measures, but without relief.

About three years ago, or one and a half years after the onset of the present condition, he had first presented himself at the skin clinic of the Good Samaritan Dispensary. He had returned once or twice at short intervals. About two years ago, or two and one half years after the onset of the disease, he had reappeared at the clinic with a story that he had recently recovered from an attack of facial erysipelas, which was accompanied by a high fever. It had lasted one week, and during this time, he claimed, all the symptoms with the exception of a slight itch had almost completely abated. One week later, however, all the skin symptoms had returned with practically the same severity as before.

Examination.—An examination revealed the following observations:

1. There were erythematous elevations varying in size from that of a pinhead to that of a pea or a trifle larger, and with or without a surrounding areola. They were disseminated or in large, irregular groups over the entire body. Many of these elevations were evanescent, and were observed appearing and disappearing; they were accompanied by itching. On diascopic pressure, they disappeared, showing only an ivory-white color.

2. There were many scratched-off papules with raw, oozing, hemorrhagic tops, or covered with crusts. Some were pustular as a result of secondary infection.

3. Many flat, shiny, lichenoid papules, either singly or in large irregular patches, were scattered over the entire body.

4. There were many scattered pinkish-white or white scars, up to about 0.25 cm. in size, which were slightly depressed. Some showed a brownish border. These were especially marked on the upper extremities.

5. Scattered over the lower part of the body and the thighs were palm-size, slightly edematous, dark red patches, which were irregular in outline and not markedly elevated.

6. The entire skin, though darker, also showed scattered brownish spots and patches. It was somewhat infiltrated, with marked evidence of scratching. In some locations, especially at the bends of the elbows and knees, the normal lines of the skin were much exaggerated.

7. The chest and axillae showed alopecia of a moderate degree. (The patient claimed that the loss of hair in these locations had been gradually increasing for the last six months).

8. The nails were shiny. The edges were worn down and concave as a result of the continuous scratching.

9. Dermographism was marked, and lasted for about an hour after stroking.

10. The skin on the palms and soles was not thickened, but at times showed numerous scattered erythematous macules.

11. The left ear (auricle) was somewhat thicker than the right, owing to numerous recurrent attacks of edema.

12. All superficial lymph glands were slightly enlarged.

13. The mouth and tongue showed a moderately congested mucous membrane, although they did not itch. While some of the teeth were missing, the remainder were apparently sound and were kept in a good condition.

14. The eyes were congested and itchy.

A complete physical examination and an examination of the blood failed to reveal any organic abnormalities besides those lesions already described. Testing for hypersensitiveness by the indirect method [13] revealed nothing.

Diagnosis.—A definite diagnosis could not be made. Dermatitis herpetiformis was excluded chiefly on the ground that there was no definite multiformity or herpetic grouping of the lesions, and by the presence of the lichenoid papules. Leukemia or other conditions of the blood as an etiologic factor for the condition of the skin was ruled out by the persistent absence of characteristic changes in the blood. The only diagnosis possible, therefore, was a dermatologic one—chronic urticaria with lichenoid dermatitis. Practically the same diagnosis was concurred in by many of the other dermatologists who had seen this patient at various times during his illness.

EXPERIMENTS WITH THE SERUM OF B. R.

Reaction Following Trauma to the Sites Injected with Serum of B. R. on Normal Skins.—Owing to the shortage of serum, only twelve subjects were given injections of the serum of B. R. All the sites of injection were later traumatized, and the resulting reactions noted. Table 3 is an itemized summary of the methods of trauma employed and the results obtained at these sites of injection in these persons.

It was noted that in all instances a uniform red line formed in the direction of the trauma. It soon became somewhat broader than the actual width of the stroked area, but retained more or less sharply outlined borders. From this point, the further progress of the reaction over the area of injection differed from that over the untreated skin. In the latter portion, the red line followed the usual normal course; that is, the color at first increased somewhat in intensity, and remained stationary for a minute or two. It then began to regress; its border became irregular; the erythema began to fade (producing variably

13. Walzer, M., and Kramer, S. D.: Studies in Specific Hypersensitiveness: XVIII. An Indirect Method of Testing for Conditions of Atopic Hypersensitiveness (A Preliminary Report), J.Immunol. **10**:835, 1925.

shaped patches) and finally it disappeared completely. This is the usual or normal reaction of the skin to trauma as it is observed on most persons.

Within the area of injection, however, the reaction progressed differently in the majority of the subjects tested. The red line or primary erythema also increased in intensity, as in the previous instances,

TABLE 3.—*Types of Trauma Employed and Results at the Sites of Injection* *

No.	Dates of Injection and Test	Type of Trauma	Reaction at Site of the Serum Injection	Results at B. R. Sites
1	9/ 1/26 9/ 3/26	Heavy stroking in one direction	Lines of erythema, followed by a surrounding secondary erythema with small wheals at each site of injection	Positive
2	9/ 1/26 9/ 3/26	Heavy stroking in one direction	Lines of erythema; no difference between the erythema within or without the area of injection; no wheals	Negative
3	9/ 1/26 9/ 3/26	Heavy stroking in one direction	Lines of erythema, followed by a surrounding secondary erythema with wheals at each site of injection	Positive
4	9/ 1/26 9/ 3/26	Heavy stroking in one direction	Lines of erythema, followed by a surrounding secondary erythema with wheals at each site of injection	Positive
5	9/14/26 9/16/26	Cross-stroking	Marked broad lines of erythema, with pronounced surrounding secondary erythema; marked cross wheal and punctate erythema filled in the entire area	Positive
6	9/14/26 9/16/26	Rubbing one row of the sites of injection	Lines of erythema, with a moderate surrounding secondary erythema, and wheals at each traumatized site of injection	Positive
7	9/14/26 9/16/26	Heavy rubbing	Erythema, but no difference between the erythema within or without the area of injection; no wheals	Negative
8	9/14/26 9/16/26	Heavy stroking in one direction	Lines of erythema with a surrounding secondary erythema; no wheals; erythema persisted for a long time after the erythema outside the area of injection had faded	Doubtful
9	9/14/26 9/16/26	Heavy stroking in one direction	Lines of erythema; no difference between the erythema within or without the area of injection; no wheals	Negative
10	9/14/26 9/16/26	Heavy rubbing	Erythema, within the area of injection, marked; wheals not only at the sites of injection, but also between them; heavy punctate erythema above and below the area of injection	Positive
11	9/15/26 9/17/26	Forcible stroking in one direction	Lines of erythema followed by a moderate surrounding erythema and wheals at each site of injection	Positive
12	9/15/26 9/17/26	Forcible stroking in one direction	Lines of erythema; no secondary erythema and no wheals; the erythema persisted for a long time after the erythema outside the site of injection had faded	Doubtful

* Injections were made into the arms, except in subject 2, in whom they were made on the chest. On the control sites, following trauma, there was no difference in the erythema within and without the area of injection.

but it soon became surrounded by a secondary erythema. In the fully developed or complete reactions, the process progressed still further. Small wheals soon appeared within the primary erythema, and gradually increased to about 1 cm. in diameter. These wheals developed at each of the sites of injection, although in one instance, as will be illustrated shortly, they also formed in areas between the sites of injection. While pruritus was always associated with these reactions, it was not pronounced.

The wheals remained stationary for a few minutes, and then the edema gradually subsided, and the erythema faded slowly. Pigmentation or exfoliation of the skin was not noted after the reaction. It usually took about thirty minutes for complete subsidence of the wheal, but the complete reaction within the area of injection on the nondermographic subjects took about forty-five minutes from its onset to complete regression.

Results of Tests with the Serum of B. R.—Table 3 is a summary of the result of the tests with the serum of B. R. It will be noted that in seven subjects, or 58 per cent, wheals formed when the sites of injection with this serum were stroked; in three, or 25 per cent, this did not occur; and in two, or 17 per cent, the reactions were considered doubtful, because wheals did not develop. The erythema at the latter sites not only persisted for a much longer time than either at the control sites or outside of the areas of injection, but one of these reactions also showed a secondary surrounding erythema not observed about the control sites.

Subject 10 showed the most active of all these reactions on normal skins. Three rows of injections were made, each row consisting of three sites. When the skin was stroked, wheals formed, not only at the sites of injection, but also on nontreated areas between them, as illustrated in the tracing (fig. 1). The secondary or surrounding erythema was pronounced. This was the only reaction that showed a punctate erythema to the outside of the area of injection. Such types of erythema have already been described and illustrated in a previous paper on experimental urticaria.[5]

On subject 6, on whom two rows of injections were made, each consisting of three sites, forcible rubbing across one row of the sites of injection caused a red line in the direction of the trauma, which was soon followed by wheals at each of the traumatized sites of injection. They were also surrounded by a marked secondary erythema (fig. 2). Two days later, the whole area of injection on this subject was stroked. While the usual erythema resulted, wheals did not form at any of the sites of injection, not even at those which had not been stroked two days previously. The entire resulting erythema, both within and without the area of injection, faded at the same time and in the same manner.

When subject 1 was stroked, wheals were elicited at the sites of injection. Heavy stroking was repeated on the following day. Besides the primary and secondary erythema, tiny wheals were again elicited at each one of the sites of injection, but they were somewhat smaller than the original ones. The erythema at this time also persisted longer within the area of injection than outside of it. Restroking twenty-four hours later did not elicit any dermographic response.

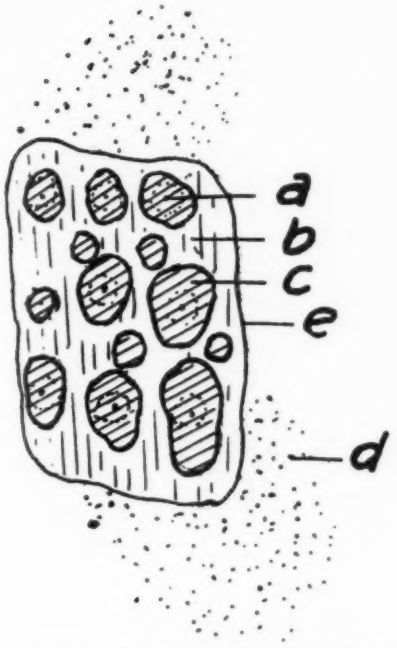

Fig. 1.—Reaction of subject 10 after injection of serum of B. R. *a* indicates the site of injection; *b*, the erythema; *c*, the wheal; *d*, the punctate erythema; *e*, the outline of injected area.

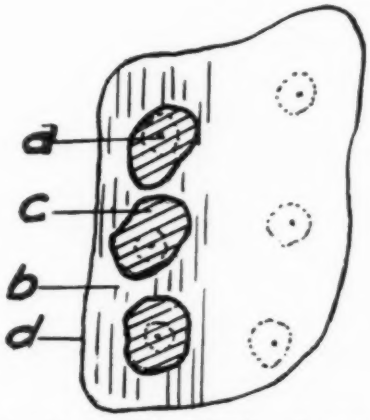

Fig. 2.—Reaction of subject 6 after injection of serum of B. R. *a* indicates the site of injection; *b*, the erythema; *c*, the wheal; *d*, the outline of the area of injection.

When subject 3 was stroked, wheals appeared at the sites of injection; however, restroking the area of injection on this subject two days after the original test did not produce a wheal but the usual erythematous response to trauma similar to that which occurred on other areas of normal skin.

Subject 2, who gave a negative reaction at the first testing, was restroked two days later. The reaction was negative again.

The only patient with urticaria factitia on whom this experiment was performed was subject 5. Two rows of injections, each consisting of three sites, were made on this subject. Forcible cross-stroking produced a marked cross-wheal with a surrounding secondary erythema all along the course of the trauma. Within thirty minutes, all that portion of the wheal with its surrounding erythema which was outside

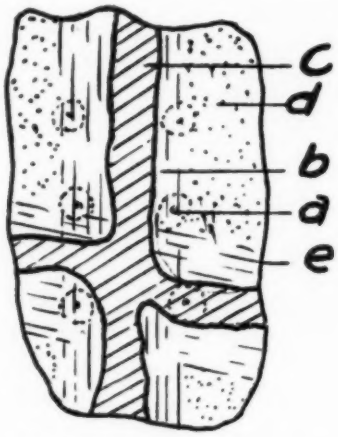

Fig. 3.—Reaction of subject 5 after injection of serum of B. R. *a* indicates the site of injection; *b*, the erythema; *c*, the wheal; *d*, the punctate erythema; *e*, the outline of area of injection.

of the area of injection had completely faded; but the cross-wheal within the area persisted prominently, and was bordered by a band of dark erythema on either side (fig. 3). The remaining portion of the area of injection had become filled in with erythematous puncta. The reaction was observed for about one hour after the stroking, and the cross-wheal was still pronounced at the end of that period.

Reactions at the Control Sites.—As has been previously stated, all intradermal injections of normal serums failed to alter the dermographic response of the skin of normal subjects at the sites of injection. Negative results were also obtained with serums of various hypersensitive patients (asthma, hay-fever, urticaria and other conditions). Since the serums of the eleven patients (table 1) had also proved similarly negative, they were employed as controls in the experiments

with the serum of B. R. Sites on the subject, corresponding to those treated with the serum of B. R., were used for all control injections, and similar methods of trauma were employed in each of the cases.

Traumatizing the control sites on every one of these subjects resulted only in lines of erythema in the direction of the stroking or rubbing. While these areas may have varied slightly in width, intensity and duration in the different subjects, they were practically within the usual normal variations and identical with the reactions observed on other nontreated areas of the skin on the same person.

COMMENT

Duke [12] classified dermographism under the head of "physical allergy." As previously stated, he attempted to transfer "this type of sensitiveness" to a nondermographic person. In one patient with pernicious anemia, into whom 1,000 cc. of blood of a dermographic donor was transfused, Duke, by stroking of the skin, was unable to produce any dermographic wheals in the patient for several days. He concluded that "physical allergy" of the contact type (under which he includes dermographism) cannot be transferred readily to another person.

The experiments reported demonstrate that the average patient with symptoms of urticaria factitia does not possess a transferable dermographism-inducing principle in the blood stream which is demonstrable with this technic. However, it does not entirely exclude the possibility of the existence of such a principle, for it is conceivable that the average patient may not contain enough of the dermographic substance; it may be in too high dilution to manifest itself by this procedure.

One case has been described, that of B. R., whose blood serum possesses this property. Whether the demonstration of a dermographism-inducing principle in the blood serum of this patient is to be attributed to the severity of his symptoms, hence a quantitative factor altogether, or to the presence of some additional unrecognized abnormality, is still a debatable question.

Lewis [4] and his associates placed the factitious wheal in the same category with the wheals of all types of urticaria, irrespective of the etiology. They considered them defensive reactions of the skin to certain types of injury, and stated that they occur in all persons, but in different degrees. They believed that all wheals are fundamentally the result of a common chemical causative factor—"a liberated substance or substances having a histamin like action." These histamine-like substances, normal tissue metabolites, or "H-substance," as Lewis calls them, are liberated immediately either in considerable concentration or in excess in the skin, as a result of various forms of either internal

or external trauma, and call forth the local vascular reaction which terminates in the wheal.

In his discussion on this subject, Lewis presented numerous arguments to show that his H-substance simulates histamine more closely than it does any other substance employed for production of wheals, because not only do they both produce wheals, but, constitutionally, the reactions of these two substances are also similar.

As part of the evidence to support this hypothesis, Lewis cited experiments in which many areas of the skin on the trunks of patients with urticaria factitia were stroked and whealed. This resulted in certain constitutional symptoms in the subjects, such as a general rise of cutaneous temperature, flushing of the face and a slight fall of blood pressure.

Lewis argued that the traumatizing of many sites at the same time generated considerable amounts of this H-substance at the whealed areas; he, therefore, attributed these constitutional symptoms to traces of this substance which had escaped from the stroked areas into the general circulation. As these symptoms corresponded closely to those resulting from the subcutaneous injection of minute doses of histamine, he concluded that the action of histamine and this H-substance are identical in their constitutional results as well as in their local action.

Harris,[14] working in Lewis' laboratory, arrived at the same conclusion as Lewis, and supports him in this contention. By employing alcoholic extracts of human skin, he showed experimentally by physiologic evidence the presence of a substance in the normal skin extract which produced a wheal on intradermal injection. This substance is also a vasodilator and a depressor. In these experiments, the author followed the technic of Best, Dale, Dudley and Thorpe[15] who have been able actually to demonstrate and isolate histamine in the form of histamine dipicrate in tissue of the lung and liver. Harris has not been able to isolate or definitely identify his substance chemically in the skin extracts; but, because of its similarity in its physiologic action, he expressed the belief that this extracted skin constituent is histamine or a histamine-like substance. He further showed that not only is it present in the cells of the normal skin in an easily disassociable form, but it is also easily released under such conditions as trauma.

Considering the severity, extent and duration of the urticarial symptoms in the patients employed in these experiments (table 2), it seems fair to assume that some of this histamine-like substance should have

14. Harris, K. E.: Observations upon a Histamin like Substance in Skin Extracts, Heart **14**:161, 1927.

15. Best, C. H.; Dale, H. H.; Dudley, H. W., and Thorpe, W. V.: The Nature of the Vaso-dilator Constituents of Certain Tissue Extracts, J. Physiol. **62**:396, 1927.

been present in the serums of at least a few of the patients. In the many intradermal injections performed with the serums of the patients, in many instances taken a number of times and at various intervals, it is significant that it was not possible to produce a single wheal on any of the subjects tested.

As has been previously stated, the serum of patient B. R. possessed a substance not found in any of the other serums employed in these experiments. It is highly improbable that the dermographism-inducing principle in this patient was like this H-substance; for, if it had been, considering the magnitude of the symptoms presented, there would have been a considerable amount of such H-substance floating in the blood stream. The injection of his serum into normal skin should have induced a histamine wheal at once. This, as was stated previously, was not the case in a single instance. The peculiarity of the serum of B. R. rested, not in its ability to induce a wheal at the time of injection, but in its ability to induce a state of altered reactivity, so that trauma at a subsequent date produces a dermographic response.

The nature of this dermographism-inducing property in the blood is as yet unknown. It is, in all probability, dependent on some chemical rather than physical property of the serum. Its mode of action also is problematic. It seems to affect the local cells by producing a mild temporary change in them, so that when they are later traumatized by stroking, and other forms of irritation, they respond through an increased permeability with wheal formation.

This dermographic response at the sites of injection in the experiments here discussed is apparently not dependent on a deposit and fixation of immunologic substances (antibodies or reagins) as were the wheals described in the previous urticarial studies.[5] In the latter sensitized areas, change in the local dermographic response did not occur as a result of the injected reagin-containing serum. It was, however, only on some of the past wheal sites which had been the seat of severe wheal reactions that factitious wheals on local stroking could be elicited. Such dermographic reactions, therefore, could not be attributed to the reagins which had been deposited with the transferred serum, but they were in all probability dependent on the changes in the local cells as a result of the original wheal produced by the antigen-reagin reaction.

Another argument against the supposition that an immunologic factor is responsible for the dermographic reaction is the fact that the sites on the skin passively sensitized with reagin-containing serums retained their sensitivity for several weeks. This was demonstrated by the induction of wheals at these sites by the ingestion of the offending food two or three weeks after sensitization[5]; but in the present dermographic experiments, factitious wheals could be elicited only a few days after the injection of the serum.

The fact that some form of physical trauma is necessary to elicit the factitious wheal also is evidence against the theory that the reaction is immunologic. That a person can become sensitive to a substance originating wholly within the body—in other words, an endogenous hypersensitiveness produced under the influence of a physical agent—is at present strongly doubted. Moreover, antibodies to physical agents have never been satisfactorily demonstrated, nor have their existence been proved.[16]

As stated previously, Duke classifies dermographism under the head of physical allergy—"specific hypersensitiveness to the action of physical agents, such as light, heat, cold, and mechanical irritants." However, he also separates this type of "hypersensitiveness" from altered reactions caused by sensitiveness to material substances, such as foods and drugs; in using this term, he says that he does not assume that these two conditions, namely, "physical allergy" and the allergy of material substances, have been proved to be related.

The short life of the induced dermographic state in the reactions here described as well as the mildness of the dermographism may help to explain the negative and doubtful results obtained on some of the subjects with the serum of B. R. It is possible that had these cases been tested within from twelve to twenty-four hours after the injection, instead of after forty-eight hours, positive reactions might have been obtained. Testing before forty-eight hours have elapsed, however, was not usually advisable, as many of the sites of injection had not regained their normal appearance before this time; and the reactions resulting from testing under these circumstances would have been difficult to interpret.

Besides the local factitious wheals, it is probable that eventually various types of constitutional dermographism may be shown to exist, just as at present it is accepted that various types of constitutional urticaria occur. Since only certain forms of hypersensitive urticaria contain a principle in the serum (reagins) which will allow its transfer and deposit in the skin of a normal person, it is conceivable that possibly only certain forms of constitutional urticaria factitia possess a circulating substance in the blood which can be demonstrated by the method here described. However, not until further studies with serums from other cases similar to that of patient B. R. will have been made will it be possible to reach definite conclusions on any of these questions.

SUMMARY

1. Dermographism is a pathologic condition, not an exaggerated normal one, and therefore cannot be elicited in every person.

16. Coca, A. F.: Personal communication to the author.

2. Demonstration of a floating principle in the blood as a cause of generalized urticaria factitia with the technic that I use was attempted with the serum of twelve patients, ten of whom had marked dermographic symptoms, and two of whom presented only lichenoid dermatitis and pruritus.

3. The results were positive in only one patient, B. R., whose history and symptoms are given in detail.

4. Seven of twelve subjects into whom was injected the serum of B. R. and who were tested by stroking responded definitely with urticaria factitia at the site of injection; two gave doubtful reactions, and three negative reactions.

5. The induced dermographic tendency was present not only at the sites of injection, but at times in the areas surrounding these sites. It persisted no longer than four days in any of the cases.

ABSTRACT OF DISCUSSION

DR. HENRY E. MICHELSON, Minneapolis: It is difficult to discuss Dr. Walzer's paper, for an experimental paper of this sort does not lend itself well to discussion. As to his trying to present an hypothesis for the urticarial wheal, I have no explanation to offer as to why one patient in particular did not show this phenomenon. In relation to this, the function of the parathyroid gland should be taken into consideration. In patients with low calcium metabolism, one sometimes gets results by giving parathyroid extract when calcium alone does not give any result.

DR. JEFFREY C. MICHAEL, Houston, Texas: Dr. Walzer was kind enough to send me a copy of his paper several weeks ago, so that I have had time to think it over. With Dr. Michelson, I find it extremely difficult to interpret his observations, though I feel that he has proved his point. This is one of a series of papers which Dr. Walzer and his collaborator have presented, and they are valuable contributions to dermatologic literature. In his previous papers, he was dealing with more specific factors than in the present study, for in the former studies he knew the agent to which the urticaria was due. In the present study such specific knowledge was lacking; furthermore, he obtained both positive and negative results. For instance, he was able to transfer urticaria factitia with the serum of but one of his subjects (B. R.), and with that in only some of his test subjects. Any hypothesis based on such results must be given with all reservation. Nevertheless, I shall attempt a hypothesis founded on a recent investigation of Dr. Nicholas, a biochemist on the faculty of Rice Institute at Houston, and myself. This investigator has demonstrated the constant presence of tyramine in the circulating blood of normal persons. So far as I am aware, this has never before been done; and it has been taught that tyramine, like other amines of intestinal origin, was completely detoxified in the liver. We believe this teaching must be revised. Now it is conceivable that Dr. Walzer's patient's blood contained an amine of this type (neither tyramine nor histamine according to some observations we have made), and that it was temporarily fixed by the cells in certain of the tested persons, producing factitial urticaria in them. Positive and negative results might be explained by variations in B. R.'s blood content of this hypothetic amine or by other suppositions which space prevents

detailing. I recognize the tenuosity of my hypothesis, but hope that it will contain some thoughts that will aid Dr. Walzer in his further work.

DR. WALZER: I had hoped for more discussion than has taken place, because I believe that there are many fundamental principles, immunologic or otherwise, involved in these experiments, which may have an important bearing on the clarifying of the knowledge concerning urticaria.

In addition to these twelve cases of urticaria, I have also experimented with the serums of a number of cases of urticaria pigmentosa; but the results, so far as transferring a dermographism-inducing principle is concerned, were also negative.

What the nature of this dermographism-inducing principle is, I am not yet able to state. Perhaps it is tyramine, or some similar substance, as was suggested by Dr. Michael, but the experiments made do not warrant such a conclusion. One thing, however, is certain; it is not histamine or the H-substance as suggested by Lewis in his writings. The fact that all wheals may look alike clinically does not necessarily imply that the mechanism of all wheals are similar—that they all fundamentally are due to histamine.

Histamine will produce shock on subcutaneous injection of a sufficient quantity into an animal, but the shock so produced is not clinically or pathologically the same as anaphylactic shock in the same animal. The pathologic changes in an animal dying in anaphylaxis is characteristic for that animal; in other words, death by anaphylactic shock in the experimental animal produces a separate and distinct pathologic change which is specific for each species of animals. This certainly is not true for shock produced by histamine.

LIVER DIET IN ACNE VULGARIS AND IN FURUNCULOSIS *

RICHARD L. SUTTON, M.D.
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No one appreciates the lack of knowledge regarding diet as a therapeutic aid in diseases of the skin more than I do, and few dermatologists have had less confidence in this method of treatment.

I suspect that much of the lack of faith is due to the fact that in the past, fancies and hobbies often have usurped the place of truth, and, as a dietitian recently has intimated, "The instructions given the patient with skin disease often are based on tradition rather than on reason."

At one time it was thought that the eating of meat might aggravate, or even cause, psoriasis, but Pusey has reported a pronounced case in a devout vegetarian, and many dermatologists can recall similar instances, facts which should prove disconcerting to the fanatic on diet.

Unfortunately, an enthusiast along this line is not easily disconcerted. For instance, an otherwise fairly intelligent patient recently brought to me a "health" booklet, the author of which strongly recommended the ingestion of carrots for "poise."

While a weak advocate of special diets, I have always felt that there was more than a grain of truth in the old Gallic belief in "diathesis," although the theory is one which has been sadly overworked in the past. Nevertheless, it is difficult for a clinician to eliminate wholly the belief that for some reason certain persons are much more susceptible than others to diseases of divers sorts. The question of resistance to infection is always a pertinent one. About one year ago, Professor Aldred Scott Warthin and I were discussing this matter and he told me of the benefit sometimes derived from the use of liver in certain chronic pyogenic disorders, and recalled the details of a severe case of streptococcic infection in which the patient had failed to respond satisfactorily to ordinary measures, but in which the condition promptly cleared up under treatment with liver feeding.

I knew of the work of Minot and Murphy [1] in pernicious anemia, and I knew that O'Leary [2] had employed liver substance as an adjunct

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* Read at the fifty-first annual meeting of the American Dermatological Association, Washington, D. C., April 30, May 1-2, 1928.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by Special Diet, J. A. M. A. **87**:470 (Aug. 14) 1926; Boston M. & S. J. **195**:410, 1926.

2. O'Leary, P. A.: Tr. Mayo Clinic, June 22, 1927.

in combating pellagra, but the use of this substance in chronic pustular disorders was new to me. In consequence, I at once began prescribing this preparation in selected cases of acne and in furunculosis. Up to the present, the number of cases in which I have given it an extended trial is so small (in only twenty-seven private patients) that I hesitate to bring the subject to the attention of the members of this association, but in many instances the results have been so pleasing that I feel the method is one which is worthy of wider investigation.

In some of the cases of furunculosis there was an increased white cell count, but as a rule the blood changes present, aside from a simple secondary anemia, were comparatively nil.

At first, the liver substance was prepared according to the methods suggested by Minot and Murphy, and by Wilkens. The skin and all shreddy parts were trimmed off in a clean fresh liver. The liver was ground twice through a fine grinder. The pulp was put on ice. The following sauce was prepared: tomato catsup, one-half cup; lemon, one-fourth cup; Worcestershire sauce, two teaspoonfuls; chives (finely chopped), one-half teaspoonful. One part of liver pulp and two and one-half parts sauce were mixed, and the preparation was served cold with salt crackers. (The liver may also be used sliced, pan-broiled, creamed, with or without cabbage, spaghetti or mushrooms, with bacon, or as a salad. Recipes for use of liver preparations are given by Daisy L. Purdy.[3]) My principal difficulty was in getting the patients to continue the use of the liver substance. Patients with so serious a disorder as pernicious anemia are generally amenable to dietitic discipline, but in my series the majority of the patients rebelled sooner or later no matter how I changed the method of preparation of the food.

It was not until the standardized liver extracts were introduced that I felt that these tests could be considered as resting on a practical basis.

At present, two preparations of this kind are available. One is a powdered extract of young pig liver, representative of one of the fractions isolated by the Harvard investigators. This extract is supplied in hermatically sealed vials, the contents of each representing 100 grains (6.5 Gm.) of fresh, raw liver. The powder is readily soluble in water, and may be administered in water, orange juice or, better, in bouillon. The dose is from two or four vials per day. The second preparation, which is a concentrated alcoholic extract of calf's liver (1 fluidounce of which represents one-half pound of fresh liver), is supplied in liquid form, the dose being 1 tablespoonful in milk, orange juice or bouillion with the noon diet, and 1 tablespoonful with the supper

3. Purdy, D. L.: J. Kansas M. Soc. **27**:269, 1927.

diet.[4] While I have depended mainly on the powdered extract, possibly because I began its use first, I have found both preparations to be efficient and dependable. The extract has been employed only in a supplementary capacity, and only in particularly resistant and obstinate cases.

The most satisfactory results in acne were secured in those patients presenting deep-seated lesions of indolent type, so common in patients whose skins are pale, moist and flabby, and lacking in both tonicity and color. The total quantity of extract ingested varied from twenty-four to seventy-two doses, an amount of the preparation, equaling one-fourth pound of liver, being taken twice daily for twelve days. This was followed by a rest period of one or two weeks, and then, if necessary, the procedure was repeated. This method proved the most satisfactory one in chronic furunculosis as well as in acne vulgaris.

Hematologically, the iron content was increased in every instance, sometimes as much as 10 per cent. The amount of improvement manifested, however, did not bear a direct relationship to the increase in hemoglobin. Apparently, other factors also are at work. Whether the therapeutic principle of liver is a hormone, as Jungmann[5] has suggested, or a simple building material, like iron or arsenic, is not definitely known.

In pernicious anemia, improvement continues only so long as the essential liver substance is ingested. When the liver diet is discarded, the disturbances quickly reappear (Schilling). In some types of secondary anemia, patients who are undergoing this treatment are not susceptible to relapses; as a rule, they hold the ground thus gained. At no time did the ingestion of the liver substance or extract give rise to any untoward symptoms.

COMMENT

In certain chronic pustular disorders of the skin, and particularly in those in which there is an associated secondary anemia, the ingestion of liver extract may prove highly beneficial.

ABSTRACT OF DISCUSSION

DR. ERWIN P. ZEISLER, Chicago: Dr. Sutton is to be congratulated for calling our attention to the value of liver feeding in these pustular disorders of the skin. Some recent investigations may throw some light on the mechanism of the action of liver. Chemical analysis of liver ash has shown the presence of copper, and it has been suggested that it is the copper which is the active element in stimulating the bone marrow and leading to the regeneration of blood in

4. Koessler, Karl K., and Maurer, Siegfried: Treatment of Pernicious Anemia with a High Caloric Diet, Rich in Vitamins, J. A. M. A. **89**:769 (Sept. 3) 1927.

5. Jungmann, cited by Schilling, Victor: Liver Therapy in Pernicious Anemia, Berlin Letter, J. A. M. A. **90**:1307 (April 21) 1928.

pernicious anemia. It may also be recalled that other metals, notably tin and manganese, have been found helpful in the treatment of furunculosis.

DR. JOHN E. LANE, New Haven, Conn.: I would like to know whether Dr. Sutton has tried this treatment in sycosis of the beard, and, if so, whether any improvement was obtained.

DR. SUTTON: Practically all of the patients I have treated have had an enormous increase in hemoglobin. It is marvelous how frequently the liver diet increases the patient's resistance. I think that if this method is tried it will be found efficient, particularly in patients with a low grade of secondary anemia. I believe, with Dr. Zeisler, that improving the resistance of the patient is one of the most important factors in the successful combating of the disease.

I have not yet had an opportunity to try the treatment in sycosis.

THE PATHOGENESIS OF TRICHOPHYTIDS

THE SPONTANEOUS PASSAGE OF FORMED ELEMENTS (SPORES) FROM THE PRIMARY LESION INTO THE CIRCULATING BLOOD*

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NEW YORK

I here report the results obtained in experiments undertaken for the purpose of throwing more light on the pathogenesis of diseases of the skin classified under the term "trichophytid." These diseases have always interested not only the clinical observer but the experimenter and research worker in immune biologic and allergic problems in general.

The exact study of tuberculosis, syphilis and dermatomycosis and the experimental work done in these fields have brought the greatest contributions to the present day knowledge of the basic principles of all chronic infections and immune processes. The relationship of dermatomycosis to other chronic infections, and to tuberculosis especially, is so close, and experimental research in these diseases has shown such a tremendous number of similarities and analogies, that, mutatis mutandis, one is almost tempted to regard the processes as identical.

In these analogies lies the general biologic importance of diseases caused by *Trichophyton fungi*. As, for practical reasons, experimentation in these diseases is decidedly easier than in the related fields, it is not surprising that to it in particular dermatologists owe much of their knowledge of infectious diseases and allergic processes in general. The foregoing facts explain why so many authors, and why I too, have chosen this particular group of fungus diseases for experimental research, and, why the amount of work which has already been done here seems disproportionate to the clinical importance of the diseases themselves. These facts also explain why the knowledge of the biologic processes of these diseases is so complete and shows the great general importance of each small step forward in this field.

There is no doubt that the most important factor determining the course of the foregoing diseases is the allergy which the macro-organism develops through the effects of the infection. This allergy is nowhere so clearly evident as in those forms of trichophytic disease which are known as trichophytids. As comparatively little has been published in America regarding the trichophytids viewed from the pathogenic biologic point of view, I may perhaps be justified in giving here an extremely

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brief summary of the knowledge on this subject. In this resumé, I will limit myself to those points which are important and which are essential for the understanding of this paper.

A common clinical classification of many infectious diseases consists in dividing them into two groups: (1) a group in which primary lesions appear at the point of infection, and (2) a group in which hematogenous lesions appear on the skin under allergic conditions and at a later date. To the latter group, the name with the suffix "id" is applied. Corresponding to the organism causing the disease, one speaks of syphilid, tuberculid, trichophytid, microsporid, favid, and other forms. The term trichophytid has come into use as a general name for all infections due to dermatophyton fungi, and in this paper, unless expressly otherwise stated, I use it in this general sense.

In 1911, J. Jadassohn first directed attention to the true nature of the diseases classified as trichophytids. In 1914, Guth published an article on the clinic and pathologic nature of these eruptions, and since that date many authors, particularly Bloch, have contributed to the knowledge on this subject. From the first it has always been apparent, and frequently stressed, by J. Jadassohn and Bloch, that a certain specific change in the reaction of the skin, an allergy, is a *sine qua non* for the appearance of a trichophytid eruption. Since for all practical purposes (there are rare exceptions) only the deeper forms of dermatomycotic infections cause the appearance of this necessary allergy, it is not surprising that the overwhelming majority of the cases of trichophytid are found in connection with the deeper kerion-celsi types of primary lesion. The presence of the allergic condition can be clearly demonstrated by the fact that all trichophytids show positive trichophytin reactions (Bloch), that is, the entire skin of the patient is hypersensitive to the application of the pathogenic fungi and their toxin, trichophytin. This fact suffices to show that there is no longer a strictly local disease of the skin, but that in some way the entire organism of the patient has become involved. Indeed, in many cases marked general signs and symptoms occur during the course of an infection produced by *Trichophyton*—fever, headache, loss of appetite, and other conditions. Bloch and Meischer first showed in a large number of detailed investigations that the deeper forms of infection caused by *Trichophyton* are accompanied by cytologic changes in the composition of the patient's blood (leukocytosis or lymphocytosis). In many cases, swelling of the lymph glands and, in some cases, swelling of the spleen were observed. This generalized trichophytic disease has, following the suggestion of J. Jadassohn, been called trichophytosis.

From the foregoing it will be seen that trichophytids occur most frequently during the presence of: (*a*) an inflammatory, mostly deep-

seated, primary lesion and (*b*) a generalized allergy following the primary infection. This second factor explains why such eruptions are most frequently found in children. It further offers an explanation of the fact that trichophytids do not appear at the same time as the primary lesion, but much later, generally after from four to six or more weeks, and at a time when the inflammation in the primary lesion is either at its height or already abating.

The individual lesion of the trichophytids represents an inflammatory reaction of the allergic skin to the trichophytic antigen.

It is now accepted as a fact that the substances causing the trichophytids are generally distributed to the skin by the blood. Taking this for granted, the question of the nature of these substances still remains undecided. There are several possibilities to be considered: (*a*) The fungi themselves or fragments of the fungi may enter the blood (from the primary lesion) and be disseminated. (*b*) Only their toxins may circulate. (*c*) Both the fungi (or fragments) and their toxins may be distributed by the blood stream.

These possibilities have been and still are the subject of many controversies and discussions. At present, it seems most probable to me that any or all of these three ways may be the pathogenic mechanism of any given type of trichophytid.

The light thrown on this subject by the experiments and observations of the last few years has made it more and more apparent that the dissemination of formed elements (in the case of fungi, spores or parts of mycelia) plays an important rôle in the pathogenesis of many secondary infectious exanthematous skin eruptions—even though Bloch was able to cause trichophytids through repeated injections of trichophytin alone.

The development of knowledge in this direction has been clear in skin tuberculosis and in syphilis. In the latter, the rôle and the presence of the spirochete in secondary eruptions, in the gumma, and even in paresis has been clearly proved. In tuberculosis of the skin, the development of recent years has been even more striking, and the etiologic significance of Koch's bacillus itself has been clearly proved in such conditions as lichen scrofulosorum, erythema induratum Bazin, papulonecrotic tuberculids, etc.

Knowledge of these questions in trichophytic diseases and reasons for regarding the fungi themselves as the causes of these eruptions have been gained in precisely the same manner as in the case of the other diseases mentioned, namely:

1. In animal experiments through injection of fungi into the circulatory systems of animals, it has been possible to cause disseminated hematogenous lesions on the skin similar to trichophytids.

2. In human beings, fungi have been demonstrated in patients having trichophytids, both in the circulating blood and in the skin lesions themselves.

That fungi can actually be distributed through the blood vessels and capillaries, and cause skin lesions, has been clearly shown in experiments with animals. Saeves was the first to introduce *Achorion quinckeanum* and *Trichophyton gypseum* into the blood of guinea-pigs and subsequently to observe disseminated cutaneous lesions in which the fungus could easily be demonstrated. Jessner and Hoffmann, Martenstein, Masia, Kogoj and Werner Jadassohn experimented further in this field. Kogoj was able, after hematogenous inoculation, to localize the lesions in any part of the skin which he wished by inflicting a slight trauma at the desired site. It may be mentioned that fungi could easily be demonstrated in all these lesions. They were therefore not trichophytids in the true sense. (In these experiments apparently the allergy of the guinea-pig's skin did not become sufficiently great to form lesions corresponding entirely to trichophytids of human beings, for in the latter fungi are not usually found; the eruptions in animals were therefore rather hematogenous trichophytic infections similar in nature to primary lesions.) This fact, however, in no way weakens the results of these experiments as proofs that fungi circulate in the blood and can reach and cause lesions in the skin.

That this also holds true in the case of human beings has been proved by demonstrations of fungi in the blood of patients suffering from trichophytic diseases. Such demonstrations were first made by Ambrosoli and Jessner and subsequently by other authors. The number of cases now reported with observations of fungus in the blood, though not large, is still sufficient to show that it is possible that trichophytids may be caused in this manner.

As far as I have been able to note in looking through the literature on this subject, fungi have been found ten times in the blood of patients with trichophytids and eight times in the lesions themselves.

Ambrosoli's figures give one an accurate idea of the great difficulty of finding the fungi in the blood of human beings. He made 1,269 blood cultures from more than 700 patients suffering from different forms of trichophytic infections, and obtained only two positive cultures. All these figures and facts are given in detail in Bloch's article on trichophytids in the new "Handbuch der Haut- und Geschlechtskrankheiten."

The demonstration of fungi in the blood of human beings must naturally be accompanied by great difficulties. The amount of blood which can be taken at any one time must be relatively small, and as it cannot be assumed that the fungi are present in great numbers, it is not surprising that one does not always encounter them. This fact alone might suffice to explain the small number of positive results. As

before stated, this does not weaken the theory that all trichophytic eruptions may be due to hematogenous distribution, but for further investigation of the mechanism, one must turn to experiments on animals.

In experimentation with animals conditions are more favorable. One can repeatedly take from a guinea-pig quantities of blood representing about one-twentieth of its weight; this corresponds to about 3 liters (1 gallon) in a human being.

Werner Jadassohn, in experiments on guinea-pigs with *Achorion quinckeanum,* was the first to demonstrate the fact that fungi from primary lesions of the skin enter the blood almost immediately post infectionem. He could grow fungi by culture from the blood of animals from one to two hours after the skin of the buttocks had been infected. He also proved the presence of the fungi in the blood by showing that a lesion of the skin set outside of the primarily infected area later developed a hematogenous trichophytic infection.

In spite of all these observations on human beings and animals, there are some important questions still unanswered, for instance, the following:

1. In consideration of the great number of the lesions seen in trichophytic eruptions each of which must, if the theory holds true, have been caused by some formed element, the number of times fungi have been observed in the blood and in the skin seems relatively too small, even though one takes into consideration the large numbers of fungi that must be destroyed by the bactericidal and allergic forces at play in the infected macro-organism.

2. It is not clear where the spores or formed elements causing the trichophytids come from, it is even less clear when and how they reach the area on the skin which develops into the trichophytic lesion. Do they become disseminated at the onset of the primary lesion, lie quiescent in the various parts of the skin, and behave saprophytically until the allergy has sufficiently developed; or, as has been assumed by J. Jadassohn for the tubercle bacillus in the case of lichen scrofulosorum, do they arrive at the skin only shortly before the appearance of the trichophytids? (The fact that Arzt could culture fungi from the blood of patients shortly before the appearance of the trichophytids supports the latter supposition).

3. The question of what happens to fungi arriving in the inner organs with the blood stream is as yet unanswered. Why is there no internal trichophytic lesion or trichophytid?

While the aforementioned results of Werner Jadassohn in experiments on guinea-pigs show that fungi can enter the blood from a cutaneously infected focus, they are not in absolute analogy to the

conditions of spontaneous trichophytic infectons, and the experiments were not undertaken for the purpose of setting up such analogies.

He does not deny, for instance, that there is the possibility in his experiments that spores were rubbed into the blood mechanically. The spores were found by W. Jadassohn only during the earliest period post infectionem, and not at the time corresponding to the appearance of spontaneous trichophytids.

It was in order to examine some of these questions more closely that I undertook the following experiments:

FIRST EXPERIMENTAL SERIES

1. *Method of Infection.*—Guinea-pigs weighing from 200 to 300 Gm. were used. These were infected cutaneously by the method first employed by Bloch. A three to four week-old culture of the pathogenic fungus (*Achorion quinckeanum*) which showed marked sporulation, was lightly rubbed into the skin of the animal's back, after the site had been epilated and slightly abrased with sandpaper.

2. *Course of the Disease.*—The infection "took" without any exceptions. The course of the disease corresponded almost exactly to the previous observations of other authors. That is, it ran as follows:

During the first four to five days post infectionem, only the traumatic reaction was present; from the sixth to the eighth day, marked scaling occurred, with but slight infiltration. From the eighth day on, the inflammatory signs increased markedly, reaching their acme at about the eleventh day. At this period, a large part of the animal's back, sometimes practically all of it, was covered with thick, dark crusts (giant scutula). There was marked infiltration, and the edges of the lesions, as well as the surface of the crusts, scaled. On touch, the animal squealed and gave evidence of pain. These crusts, which I examined frequently and at various intervals, always contained great quantities of typical *Achorion quinckeanum.*

At the time of the acme of these signs on the skin, the animals often showed symptoms of general sickness and malaise.

After the eleventh or the twelfth day, an abrupt change for the better set in, leading to quick recovery. In from three to four days, fourteen to sixteen days after infection, most of the symptoms of inflammation had disappeared, and only a slightly reddened and scaly bald patch marked the site of infection.

I may add that the animals which were younger and lighter in weight seemed to show the most severe infections.

Number of Blood Specimens Examined.—One hundred and forty-one blood specimens were taken and about 110 animals were employed in the experiments. For technical and other reasons, I found it best to use most of the animals only once.

Technic of Taking of Blood.—The technic I employed was identical with that of Werner Jadassohn. The guinea-pig, after epilation of the region over the heart, was laid on its back. The epilated area was well washed with alcohol, and then cauterized with a red hot iron. The heart was then punctured with a sterile needle and the blood aspirated in an ordinary sterile glass syringe. The amount of blood thus removed averaged about 10 cc. a puncture.

It was immediately poured into and mixed with Sabouraud's maltose medium —kept liquid at a temperature of from 38 to 40 C. About 1.5 to 2 cc. of blood

was added to each test tube of medium. This mixture was then poured into ordinary blood plates. The blood was taken at different time intervals, ranging from one hour to fifteen days after the cutaneous infection. Table 1 shows the number and distribution of the investigations as well as their results. Each number represents one taking of blood, and is the number of the guinea-pig in this experiment.

The bold face type designates those portions of blood from which a positive culture of typical *Achorion quinckeanum* was obtained.

Results in Addition to Those Shown in the Table.—Since the number of positive blood plates and the number of colonies on each positive plate are not given in table 1, I shall add this information:

Guinea-pig 829 (one hour post infectionem): Numerous plates, each with numerous colonies.

TABLE 1.—*Cultures from the Blood of Guinea-Pigs After Cutaneous Infection with Achorion quinckeanum*

Number of Hours after Cutaneous Infection																			
1 Hr.	5 Hrs.	1 × 24	36 Hrs.	2 × 24	3 × 24	4 × 24	5 × 24	6 × 24	7 × 24	8 × 24	9 × 24	10 × 24	11 × 24	12 × 24	13 × 24	14 × 24	15 × 24	16 × 24	17 × 24	18 × 24
829	**881**	863	939	835	787	961	970	811	967	955	935	946	1272	1431	228	989	925	..	..	863
...	...	**892**	750	1221	1221	964	515	902	941	828	986	708	1211	1432	224	849	588	..	..	...
...	...	**1124**	...	1453	1453	761	934	871	810	815	928	800	1411	1433	250	...	...	..	..	...
...	...	...	...	**818**	....	833	762	925	851	707	1486	**987**	1294	**1266**	**284**	...	...	..	..	...
...	...	...	...	994	....	355	243	228	908	852	1402	1471	1275	1261	1454	...	...	..	..	...
...	...	...	...	520	....	263	257	224	509	928	1262	**1490**	1218	1461	1410	...	...	..	..	...
...	...	...	...	...	....	285	213	**250**	1467	227	1278	1492	**268**	1253	291	...	...	..	..	...
...	...	...	...	...	....	267	252	294	1219	1431	521	1282	264	285	254	...	...	..	..	...
...	...	...	...	...	....	214	230	551	256	1409	1427	**1405**	1216	214	...	...	...	..	..	...
...	...	...	...	...	....	...	553	986	...	1471	209	1472	298	243	...	...	...	..	..	...
...	...	...	...	...	....	...	908	843	...	...	...	1265	1420	257	...	...	...	..	..	...
...	...	...	...	...	....	...	...	961	...	...	...	1448	1491	213	...	...	...	..	..	...
...	...	...	...	...	....	...	...	928	...	...	...	1476	1214	252	...	...	...	..	..	...
...	...	...	...	...	....	...	...	...	...	...	...	295	**253**	208	...	...	...	..	..	...
...	...	...	...	...	....	...	...	...	...	...	...	245	**241**	1408	...	...	...	..	..	...
...	...	...	...	...	....	...	...	...	...	...	...	**1330**	1456	1219	...	...	...	..	..	...
...	...	...	...	...	....	...	...	...	...	...	...	**1203**	255	....	...	...	...	..	..	...
...	...	...	...	...	....	...	...	...	...	...	...	....	....	....	...	...	...	..	..	...

Guinea-pig 881 (five hours post infectionem): Numerous plates, each with numerous colonies.

Guinea-pig 892 (1 × 24 hours after infection): Three plates, one to two colonies.

Guinea-pig 1,124 (1 × 24 hours after infection): One plate, one colony.

Guinea-pig 818 (2 × 24 hours after infection): One plate, seven colonies.

Guinea-pig 250 (6 × 24 hours after infection): One plate, one colony.

Guinea-pig 987 (10×24 hours after infection): One plate, one colony.

Guinea-pig 1,490 (10 × 24 hours after infection): One plate, one colony.

Guinea-pig 1,405 (10×24 hours after infection): One plate, one colony.

Guinea-pig 1,330 (10 × 24 hours after infection): Numerous plates, numerous colonies each.

Guinea-pig 1,203 (10 × 24 hours after infection): One plate, one colony.

Guinea-pig 253 (11 × 24 hours after infection): One plate, one colony.

Guinea-pig 268 (11 × 24 hours after infection): Two plates, one colony each.

Guinea-pig 241 (11 × 24 hours after infection): Two plates, one colony each.

Guinea-pig 1,266 (12 × 24 hours after infection): One plate, one colony.
Guinea-pig 294 (13 × 24 hours after infection): One plate, one colony.

Nor could the length of the time interval elapsing between the pouring of the plates and the first appearance of the growth of the fungus be shown on the table. This varied from nine to twenty-six days.[1]

COMMENT

Under the given experimental conditions, namely, the cutaneous infection of guinea-pigs with *Achorion quinckeanum,* fungi could be cultured from the blood at various times.

In examining table 1, one can distinguish three phases, two positive and one negative.

1. The first positive phase, from one hour to two days after the inoculation, evidently corresponds to W. Jadassohn's observations.

2. There then comes a negative phase, lasting from about the third to the ninth day, inclusive. In this phase, fifty-three blood specimens from different animals were examined, and only one positive culture obtained.

3. The most interesting and striking result of my experiments is the fact that this negative phase is followed by a second positive one. On the tenth or eleventh day after inoculation, fungi again appear in the blood in larger numbers. In thirty-four blood tests on different animals, eight positive cultures resulted in this short period. On the tenth day, five positive cultures occurred, on the eleventh day, three (and in some cases there were numerous colonies), and on the twelfth and the thirteenth day, there was one each.

This finding of a second positive phase seems to me to be of great importance for the conception of the pathogenesis of trichophytic eruptions. It shows that after the elapse of a certain time interval after the primary infection, a hematogenous dissemination of fungi takes place, which can (directly or indirectly) originate only from the primary lesion. This second dissemination is surely spontaneous and cannot have been caused by artificial rubbing in as might be possible in the first phase.

The fact that a negative phase intervenes between the two positive ones, and that the second period during which fungi are found is limited

1. At first, I thought it possible that the fungi had been impaired in their growth to varying degrees, according to the bactericidal and allergic forces brought to bear on them during their sojourn in the guinea-pig. However, the differences in time elapsing until visible colonies appear is probably only a question of the number of fungi present in a certain quantity of medium. If one takes a suspension of fungus spores, and dilutes it with physiologic sodium chloride, say 1:10, 1:1,000, 1:1,000,000, 1:1,000,000,000 and then pours plates with those dilutions, one finds that colonies appear much sooner in the higher concentrations, and the length of time required for them to become visible is proportional to the dilution.

strictly to a certain short period of time, at first seems curious and demands explanation. I believe that it is not a pure coincidence that the second dissemination takes place at just this time. As Bloch and others have shown, this is precisely the period in which the primary lesion reaches the height of its inflammatory reaction (acme), the allergy is at its maximum, the spontaneous involution begins and the fungi begin to disappear from the primarily infected area.

Inner causal connections evidently exist between these different phenomena, and seem to originate in the same fundamental biologic mechanism, i.e., the allergic process.

As Hanawa has shown, at just this time and due to the strength of the allergy, great morphologic changes take place in the tissues of the primary lesion. At this period, he found not only marked inflammation, but even necrobiosis, leading to demarcation and elimination of the whole area. It can be easily understood that these processes not only lead to the throwing off of the fungi to the outside, but also favor the thrusting of the fungi toward the inside, into the blood stream.

These facts are now clear, as far as they concern experimental conditions in animals. There still remains the question of how far they apply to spontaneous trichophytic infections in human beings.

If one considers that such spontaneous eruptions in human beings appear at this same specific limited period, namely, when the inflammation of the kerion has reached or passed its acme, when the allergy is at its height and when general symptoms are often apparent, it seems probable that they are caused by the same biologic mechanism. The absolute proof of this can be obtained only by great numbers of cultural examinations of the blood of patients with diseases caused by Trichophyton. I have already pointed out that this is much more difficult here than in the case of animals.

Even more care must be exercised in considering the results of these experiments as absolutely analogous to the processes in other diseases with a similar course, for example, to lepra, tuberculosis or syphilis. Notwithstanding this, I would like to emphasize that analogies surely exist: in these other diseases, one also finds marked variations in the degree of allergy during their course (for example anergy during the exanthema in tuberculosis, as Pirquet showed, or the variations of the Wassermann test in the course of syphilis). One also finds the dissemination of micro-organisms in showers into the blood stream, as Liebermeister first showed in tuberculosis, and both in tuberculosis and in syphilis it can be noted that the exanthemas (tuberculids and syphilids) break out at regular or irregular intervals. It seems logical to assume that in these diseases conditions are at least similar to those which I found in my experiments.

SECOND EXPERIMENTAL SERIES

Thirty-four guinea-pigs were infected cutaneously in the manner described in the foregoing experiments. At different intervals of time after the infection, the guinea-pigs were killed and the internal organs removed, with all precautions for sterility. The organs were cut into pieces, from 5 to 10 mm. in size, and these were immediately placed on Sabouraud's maltose slant agar. The results of these cultures are shown in table 2. The animals, in which the organs gave positive cultures of *Achorion* fungi are represented by bold face type. The following organs were examined in this way: the heart, liver, spleen, lungs, testicles, ovaries and brain (in some cases).

The organs showing positive cultures were: the spleen in guinea-pig, 908; only the kidneys in guinea-pigs 297 and 1491.

COMMENT

Since the first series of experiments showed that fungi from cutaneous primary lesions enter the blood, the next logical step was to

TABLE 2.—*Cultures of Internal Organs of Guinea-Pigs After Cutaneous Infection with Achorion quinckeanum*

Number of Hours after Cutaneous Infection															
1 × 24	2 × 24	3 × 24	4 × 24	5 × 24	6 × 24	7 × 24	8 × 24	9 × 24	10 × 24	11 × 24	12 × 24	13 × 24	14 × 24	15 × 24	16 × 24
1224	..	..	..	230	..	**908**	227	521	1330	268	208	1454	..	..	1262
....	..	..	..	553	..	202	1431	1427	1203	**1491**	1219	254	..	..	....
....	..	..	..	...	..	509	1409	209	....	1241	1408	291	..	..	....
....	..	..	..	...	..	1467	1471	...	.....	253	....	1410	..	..	....
....	..	..	..	...	..	**297**	....	...	....	241	....	....	..	..	....
....	..	..	..	...	..	1219	....	...	....	1456	....	....	..	..	....
....	..	..	..	...	..	256	....	...	....	255	....	....	..	..	....
....	..	..	..	...	..	....	....	...	....	....	....	....	..	..	....

determine whether these fungi could be demonstrated as reaching the various internal organs.

As was to be expected and as table 2 shows, fungi were found.

The number of examinations is, of course, far from sufficient to determine whether these fungi are particularly attracted to, or retained by, any special organ or organs. The result simply proves that fungi, living and capable of life, reach the internal organs of animals which have been inoculated cutaneously.

The interesting question of what happens to these fungi in the internal organs, and especially why they do not produce internal trichophytic disease or trichophytids will be discussed in my next communication on this subject.[2]

SUMMARY

1. Over 100 guinea-pigs were inoculated cutaneously with *Achorion quinckeanum*. One hundred and forty-one blood specimens from these

2. Sulzberger, M.: Arch. f. Dermat. u. Syph., to be published.

animals were examined at different intervals post infectionem. Sixteen of these gave positive cultures. The positive cultures fell chronologically into two phases: an early one (occurring from one hour to two days post infectionem) and a later one (occurring from ten to eleven, twelve or thirteen days post infectionem), with an intervening negative phase.

The internal organs of thirty-four guinea-pigs which had been inoculated with *Achorion quinckeanum* were examined at different intervals post infectionem. Fungi could be demonstrated by culture in three cases.

2. The apparent existence of the later period, in which fungi again become disseminated, is interesting for the following reasons:

(*a*) It is surely due to a spontaneous, not to an artificial, process.

(*b*) It coincides in time with the maximum of the allergy, the acme of the inflammatory process in the primary lesion, as well as the most marked histologic changes in the primarily infected area and the beginning of the disappearance of the fungi therefrom.

It is assumed that the allergic change is the basis for all these phenomena.

3. As the time factors, allergic and histologic changes, and the course of spontaneous trichophytic infections in human beings are similar to those in my experiments, it may be deduced by analogy that such infections in man may be caused by a mechanism similar to the one demonstrated in these experiments, namely, by hematogenous dissemination of formed elements of fungi originating from the primary lesion, and occurring shortly before the appearance of the eruption.

It is further probable that this rule applies to many other exanthematous diseases which show the same analogies (allergy, etc.), for instance, to lepra, syphilis and most especially to tuberculosis (syphilids and tuberculids).[3]

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3. A complete index of the literature on this subject can be found in articles by Bloch, B., appearing in the Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer. 1. Allgemeie und experimentelle Biologie der durch Hyphomyceten erzeugten Dermatomykosen. 2. Pathogenese der Trichophytide.

Miscellany

NIAGARAFALL VOM KANADISCHEN UFER

Brüllend stürzt der Niagara
Ueber Felsen machtig nieder
Und in den zerstäubten Fluten
Spiegelt sich die Sonne wieder.
Leuchtend tanzen Regenbogen
Vor den wilden Wassermassen.
O du schaurig schönes Schauspiel,
Wer will dich in Worte fassen?

—Erich Hoffmann.

Hear the roar of mighty waters
Rushing over massive granite.
In the spray that rises lofty
May be seen reflected sun-rays.
In the floods are rainbows dancing
To the tunes of water masses.
Oh! thou awe-inspiring drama,
All words fail to frame thy wonders.

Brilliant versatility is a quality of intellect that is inspiring in one's colleagues. For this reason, and because of the beauty of the lines, we reproduce the little poem on the Niagara Falls, written by Prof. Erich Hoffmann on his visit to this country in 1907. The verse is strikingly fitting in its description of that majestic scene. The excellent translation is by Mr. Henry R. Wolcott of the staff of the American Medical Association.

News and Comment

NEW DERMATOLOGIC SOCIETY

At a meeting held in Davenport, Iowa, on Oct. 29, 1928, dermatologists in Iowa and Western Illinois formed the Iowa and Western Illinois Dermatological Association. The chief officers are: President, Dr. Robert E. Jameson, Davenport, Iowa; Honorary President, Dr. James C. Kessler, Iowa City; Secretary, Dr. A. T. Leipold, Moline, Ill.

Obituary

HERMANN G. KLOTZ, M.D.

1844-1928

Dr. Hermann G. Klotz died in New York on May 6, 1928, of bronchial pneumonia, in his eighty-fourth year.

Dr. Klotz was born in Saxony on Aug. 21, 1844. His father and a number of his relatives were physicians. After his graduation from the gymnasium, he began the study of medicine at the University of Leipzig in 1864. A part of his student years were spent at Heidelberg and Wurzburg, but he graduated at Leipzig in 1868. While a student at Wurzburg, during the war between Prussia and Austria, he served with the Bavarian army and was decorated with the Bavarian Cross. After graduating at Leipzig, he received an appointment as assistant at the old Eppendorfer Krankenhaus at Hamburg. While waiting for this appointment, he served as a surgeon on one of the ships of the Hamburg-American Line. During the Franco-Prussian war his ship was interned in New York and, while waiting for the cessation of hostilities, he accepted a temporary appointment as resident physician with the German, now the Lenox Hill, Hospital. Here he became acquainted with the late Dr. Edward F. Schwedler, one of the founders of the hospital, and later became his associate and married his daughter, Marie C. Schwedler. The accident of war thus determined his settling in New York.

Dr. Klotz was closely identified with the German Hospital and Dispensary. At the time of his death, he was the only honorary member of the alumni association of the institution.

He became a member of the New York Dermatological Society in 1887, served twice as its president and in 1913 was made an honorary member. He was an active member of the American Dermatological Association from 1888 until his death. He was a fellow of the New York Academy of Medicine, and in recognition of his assistance in establishing the medical library of the Kings County Medical Society he was made an honorary member of that organization.

Dr. Klotz was interested in dermatology from the beginning of his medical career. He was not a frequent contributor to dermatologic literature, but his publications were thoughtful and were always respected. His outstanding achievement, perhaps, was the promotion of intramuscular injections of mercury in this country. He was also interested in genito-urinary diseases. His first paper, on the endoscope, was published in 1886 and represents one of the earliest attempts in

HERMANN G. KLOTZ, M.D.
1844-1928

this country to employ direct visual examination of the urethra. He was always interested in American mineral springs, and one of his later contributions was an appeal for the development of American health springs along the lines of the European spas, with proper medical supervision and governmental conservation.

Dr. Klotz took an active interest in civic affairs and was conscientious in performing the duties of an American citizen. He became naturalized soon after coming to this country, and there was never any question about his allegiance to his adopted country. He was unswervingly loyal to the United States during the World War, even at the sacrifice of life long friendships. Although quiet and unobtrusive, he was a man of firm convictions and of great moral courage.

During his later years, Dr. Klotz retired from active practice and lived at White Plains. His death removes one of the older figures in American dermatology and one who enjoyed wide respect and affection.

Abstracts from Current Literature

TULAREMIA. WALTER M. SIMPSON, Arch. Path. **6**:553 (Oct.) 1928.

Simpson's patient died four days and seven hours after the onset of illness, the most rapidly fatal case of tularemia on record. The patient presented symptoms of an overwhelming bacteriemia in which *Bacterium tularense* alone was the causative organism. Postmortem examination revealed the characteristic "spotted spleen" and enlarged caseous regional lymph nodes. This is one of fifty-three proved cases in one city (Dayton, Ohio) during a period of three months. The clinical course and postmortem observations are described in detail.

XANTHOMA OF THE CHOROID PLEXUS. GERALD H. J. PEARSON, Arch. Path. **6**:595 (Oct.) 1928.

Necropsy revealed the choroid plexus of the lateral ventricles to be enlarged and studded with the yellow lesions of xanthoma. No estimation was made of the cholesterol content of the blood. The liver showed biliary cirrhosis with fatty infiltration.

CISTERNAL AND LUMBAR PUNCTURE. HARRY C. SAUNDERS and LEO SPIEGEL, J. A. M. A. **91**:630 (Sept. 1) 1928.

A comparative study of cisternal and lumbar fluids in syphilis did not show any difference in the Wassermann reaction, and only slight differences in the cell count, colloidal gold and globulin reactions. Forty-three cases of late syphilis were studied.

RECURRENT HERPES ZOSTER. A. L. SKOOG, J. A. M. A. **91**:791 (Sept. 15) 1928.

Skoog's patient had herpes zoster and tabes dorsalis. He had recurrent attacks of herpes zoster for a period of three years, occurring about every six weeks, and always during an attack of gastric crisis. Involvement each time was of the second sacral segmental area, either on the right or left, and frequently it was bilateral. The attacks ran the usual course. The report embodies a case history with photographic illustration, and a critical review of the literature, with respect to the frequency of recurrent herpes zoster, the etiology and the relationship between herpes zoster and syphilis. The author concludes that syphilis favors the possibility of the development of herpes zoster. As to etiology, he accepts the theory that some organism produces ganglionitis and secondarily the eruption, but in a certain number of the cases there is some additional etiologic factor, whether syphilis, trauma or neighborhood disease such as tuberculosis or malignant neoplasms.

ROTOGRAVURE INK DERMATITIS. EDWARD A. OLIVER, J. A. M. A. **91**:870 (Sept. 22) 1928.

Fifteen cases of dermatitis are reported due to the ink used in rotogravure sections of newspapers. The face, forehead and eyelids are usually involved with a scaly, pruritic acute inflammation of the skin occurring shortly after the handling of the newspaper. Any part of the body may be involved; in one of the cases reported, it was the scalp. The irritating agent is para-red, a dry color used in the ink. All of the patients exhibited typical diagnostic skin reactions when tested with the ink. The detection of this agent should undoubtedly help to explain a number of cases of dermatitis venenata hitherto undetermined.

A Case of Pellagra Following Voluntary Reduction of Diet. Paul S. Carley, J. A. M. A. **91**:879 (Sept. 22) 1928.

Carley's patient, because of indigestion, limited her diet largely to cooked cereals. About one year later, she developed symptoms which lead to a diagnosis of pellagra. Treatment consisted of an ordinary unrestricted diet, and in addition, 2 ounces (62.2 Gm.) of dried brewers yeast per day. In one month the dermatitis and mouth symptoms had disappeared completely, and shortly after, evidence of pellagra could not be elicited.

Experimental Creeping Eruption from a Cat and Dog Hookworm (A. Braziliense). Bedford Sbelmire, J. A. M. A. **91**:938 (Sept. 29) 1928.

The report includes a critical review of the literature and the results of experimental work done with larvae of the cat and dog hookworm, *Ankylostoma brasiliense*. Four different parasites have been found to cause the cutaneous condition of creeping eruption, but the author is of the opinion that the ordinary form of creeping eruption encountered in this country is caused by infective larvae of *Ankylostoma brasiliense*, and that the infection is obtained from moist sand and earth contaminated by the excreta of cats and dogs harboring the hookworm. Eighteen volunteers were contaminated with a pure culture of larvae from a single adult female worm. The clinical manifestations were indistinguishable from those of spontaneously acquired cases. Two of the patients developed high fever from intercurrent infections; the development of the creeping eruption was definitely retarded. No evidence was found of intestinal infection with the parasite. Blood pictures did not show any change other than a slight increase in eosinophils. The article includes a detailed report of the experimental work performed, the clinical manifestations and some excellent photographs.

Rattner, Chicago.

On the Absorption of Salicylic Acid by the Human Skin. H. Leslie-Roberts, Brit. J. Dermat. **40**:325 (Aug.-Sept.) 1928.

The absorption of salicylic acid by the skin is discussed by the author with a detailed report of the method of investigation and records of his cases. Three typical solvents were selected — petrolatum, alcohol and water — and it was found that absorption could take place from all three.

From the data recorded in his experiments, Leslie-Roberts draws the following conclusions: Pure synthetic salicylic acid can be transported through the epidermis into the connective tissue and thence into the blood stream. The colloids of the connective tissue retain the drug by adsorption, and from these surfaces it is liberated gradually, passes into the blood, and is mainly excreted by the kidney. The excreted portion may be estimated colorimetrically in milligrams per hundred cubic centimeters of urine and if the quantity of urine voided in the twenty-four hours is known, the total urinary excretion of salicylic acid may be calculated. Petrolatum is probably the best solvent, although this question is not definitely settled by the data.

The key to the penetration of salicylic acid is probably held by the fibroblasts of the cutaneous connective tissue. The permeability of the drug in the skin, moreover, varies in different persons, according to the physicochemical condition of the inner environment. Although solid keratin is itself quite impervious to absorption of salicylic acid, it plays a part in the translocation of the acid through the skin. It is from this surface layer and not from the mass of solvent that the fraction transported is drawn. The chemical form in which the acid is transported is still unknown. Cholesterol in the epidermal fat may be a factor, the salicylic acid possibly passing as a lipoid ester. The powerful effect of salicylic acid on extravasated leukocytes is probably due to its ease in penetrating these cells.

SYSTEMIC BLASTOMYCOSIS, WITH REPORT OF A FATAL CASE. D. C. SMITH, H. C. TURNER and E. S. SANDERSON, Brit. J. Dermat. **40**:344 (Aug.-Sept.) 1928.

A case is reported in an American man, aged 42, who presented a generalized blastomycosis of the skin and subcutaneous tissues, with an associated pulmonary blastomycosis. Blastomyces were found in smears of the sputum. The condition progressed to a fatal termination, and an abstract of the report of the autopsy is presented. A discussion of blastomycosis with reference to cases reported in the literature precedes the report of the case. A description of the organism isolated in this case is presented. Three photographs revealing the clinical picture and four illustrations of the organism are shown.

WIEN, Chicago.

LEUKONYCHIA: WITH DYSIDROSIS. S. E. DORE, Proc. Roy. Soc. Med. **21**:1708 (Aug.) 1928.

Two butchers presented well marked cases of total or partial leukonychia, lasting five years. Dr. Graham Little recently reported a similar case, also in a butcher. In one of these cases, the patient ceased work for three months, and during that interval the nails became normal. The patient suffered a relapse, however, when he resumed work. It looks, therefore, as if this condition could be classed among the industrial diseases. Both men said that their hands were not immersed in water too long, and that they did not sustain any particular injuries in their work. Dr. Whitfield pointed out that they were constantly handling moist meat. In both cases, some of the toenails appeared to be whiter than normal, but were not definitely affected. There were two sisters and a brother who did not contract the disease. One of the patients also suffered from dysidrosis, but that cleared up.

DISCUSSION ON THE TREATMENT OF VARICOSE ULCERS BY INTRAVENOUS INJECTIONS. SECTION ON DERMATOLOGY AND SECTION ON SURGERY, Proc. Roy. Soc. Med. **21**:1823 (Sept.) 1928.

Fifteen pages are devoted to a discussion of the injection treatment of varicose ulcers, the meeting reported being a joint one between the sections on Dermatology and Surgery of the Royal Society of Medicine. Professor Sicard, Doctor Forestier and Doctor Gautier classed ulcers as postphlebitic ulcers with edema, dirty serpiginous ulcers of long standing with surrounding sclerosis and local dystrophy, ulcers with moderate or mild local disturbances and mixed varicose and syphilitic ulcers. Their technic introduced in 1916 was outlined. Sodium salicylate (from 20 to 60 per cent) in dosages of from 2 to 3 cc. is injected proximally to the ulcer, the number and frequency of injections being varied with the individual case. They report "hundreds of cases with constant success and without a single untoward incident." T. Higgins was disappointed in the results obtained with injections of dextrose but was satisfied with injections of sodium salicylate and quinine. He pointed out the value of the method particularly when used early to prevent formation of ulcers. Sir Sidney Alexander discussed details of technic and methods of avoiding complications, and pointed out the advantage of local treatment of ulcers during injection treatment. David Levi presented a histologic study of veins excised at varying intervals after injection. W. N. Goldsmith, whose favorite chemical for injection was a 50 per cent dextrose solution stated that an injection should not be made into a vein which after stripping with two fingers showed active flow of blood upward and emphasized the contraindications of present or past phlebitis, these having been mentioned by other speakers. Basing his opinion on the work of Sicard with iodized oil, 40 per cent, Goldsmith recommended that the leg be at complete rest during injection and the muscles not used for a half hour afterward. H. Beckett-Overy after making 500 injections favored sodium salicylate and St. G. Gray preferred quinine and urethane.

In closing Doctor Forestier said that Professor Sicard and his co-workers had made over 300,000 injections of sodium salicylate and nearly 25,000 injections of quinine and that they could not report one case of pulmonary embolism which occurred as an accident. This immunity was largely due to the fact that before the method was employed in any case, the patient was subjected to a thorough examination of the urinary system, the blood pressure and the cardiac system. The fatal cases reported in the literature had followed the use of dextrose. He would not say that dextrose was not good for the purpose, he would say only that he and his colleagues did not use it.

GUY, Pittsburgh.

ATYPICAL LESIONS OF THE GLABROUS SKIN IN FAVUS. M. G. MGUEBROW, Ann. de dermat. et syph. **9**:649 (Aug.) 1928.

The unusual manifestations encountered by the author are divisible into three groups. The first group presents considerable similarity to the typical forms of favus of the glabrous skin, differing chiefly in that scutula are never present. The second group is characterized by the superficiality of the efflorescences. They occur as either squamous or erythematosquamous patches with sharply demarcated borders. The third group comprises cases in which the lesions are infiltrated plaques suggesting psoriasis. The cases of three sisters are described. In one, favus of the scalp had been cured with roentgen rays, but the lesions on the body were regarded as psoriasis. The other sisters presented lesions only of the glabrous skin.

The author states that the diagnosis should be supported by laboratory observations. His patients, with the exceptions described, had favus of the scalp as well as lesions on the body. Treatment of the first group by parasiticidal ointments is quickly successful. The second group responds more slowly. The third type is obstinate, persistent treatment being required for months.

GENERAL CONSIDERATIONS OF FUNGUS INFECTIONS OF THE SKIN. R. SABOURAUD, Ann. de dermat. et syph. **9**:656 (Aug.) 1928.

Sabouraud's article, an initial memoir, is a work of synthesis and analysis of present knowledge of this group of cutaneous conditions. Investigation in this field is universal; it has shown how the flora varies from country to country. The subject still presents many problematic points, and an analytic study should point out some of the roads toward their solution.

Favus is then discussed. *Achorion* is a universal parasite. This species does not present geographic variations. Wherever encountered, its cultures are uniform; perhaps in rare instances insignificant variations in the rate of growth and the like may be seen.

Favus of the scalp presents several clinical types; the normal one is characterized by the scutula. But this is not an indispensable feature, as it is lacking in many cases. There are three forms without scutula; the pityroid, impetiginoid and papyroid. The last is the rarest; sometimes minute scutula are seen under the papyraceous crust.

The mechanism of the formation of the scutula can be understood from a study of the microsporons. The early stage of the invasion of these parasites shows a preliminary concentration at the follicular mouths preceding its deeper penetration. This concentration has been carried further by *Achorions* leading to the formation of the visible scutula.

Achorions infecting animals are discussed with particular emphasis on mycologic details. Four species are recognized: *A. quinckeanum, A. gallinae, A. violaceum* and *A. gypseum*. There is some doubt that the last two are true *Achorions*.

A Rare Case of Malignant Secondary Syphilis: Generalized Papulo-Tubercular Syphilid. Gravagna, Ann. de dermat. et syph. **9**:670 (Aug.) 1928.

The patient was a man, aged 59, whose eruption had been present three months. Practically the entire cutaneous surface was studded with large papules or nodules, which in places were confluent and ulcerative. Both the Wassermann and the Meinecke reaction were negative. *Treponema* were not demonstrated in the lesions. Despite these negative observations, the author was satisfied of the correctness of his diagnosis, basing it on a clinical differentiation from other disorders, the favorable influence of specific remedies and erosive lesions of the buccal mucosa.

Hyperkeratosis of the Extremities in Cold Weather. R. Barthelemy, Ann. de dermat. et syph. **9**:681 (Aug.) 1928.

This minor ailment is not mentioned in any representative French text, but deserves to be. It begins at the onset of cool weather with a thickening of the skin of the pulp of the fingers followed by superficial desquamation leaving a pink, thin surface. On this surface partly adherent scales may be present. In some instances, the surface may remain slightly thickened, less mobile than normal and rough. The condition may involve other areas of the hands. It is less marked on the feet. Besides this type, there is a fissured and a subungual hyperkeratotic variety. The condition disappears with the return of warm weather. The feet may show slight signs of the disorder, but their protection saves them from the marked types.

Most of the patients have a dry skin. This predisposing factor is accentuated by the vasoconstrictor action of cold.

Treatment consists in physiotherapy, protection from cold, inunctions and belladonna internally.

Ingrowing Hairs. G. Weninger, Ann. de dermat. et syph. **9**:687 (Aug.) 1928.

Weninger has studied this common papular and papulopustular disorder of the bearded region. The lesion is the effect of a foreign body reaction to an imbedded hair. In his cases he has noted a familial and hereditary occurrence. He also believes that the underlying cause is an exaggerated obliquity of the hairs, such as is seen in the embryo. In severe cases, manual epilation may be practiced.

Infection with Leprosy in France from an Imported Case. P. Giacardy, Ann. de dermat. et syph. **9**:695 (Aug.) 1928.

The patient, who had never been out of France, had nodular leprosy. The contamination was traced to a woman who had contracted leprosy in one of the French colonies. The incubation period was eight years. The patient was 19 years of age when she was infected.

Michael, Houston, Texas.

Radiographic Study of Elimination of Bismuth. A. Galliot, Bull. Soc. franç. de dermat. et syph. **35**:468, 1928.

Galliot says that soluble bismuth salts do not produce a radiographic shadow after intragluteal injection. The urine does not show the presence of bismuth four or five days after a series of intramuscular injections of a soluble salt, though bismuth is demonstrable in the urine from ten to sixteen days after a series of metallic bismuth suspension in water.

The Experimental Production of Canities and Alopecia Areata in Rabbits by Intensive Administration of Thyroid. P. Sainton and P. Veran, Bull. Soc. franç. de dermat. et syph. **35**:471, 1928.

A rabbit that received large doses and prolonged administration of thyroid extract intraperitoneally showed areate alopecia and canities. These manifestations

developed coincidentally with sudden loss of weight, tachycardia and other changes. In view of the authors' previous work with fowls, it can be stated that thyroid intoxication in animals has a definite alopecic and depigmentary effect.

(In the discussion Sabouraud said that loss of weight in animals caused alopecia but not of the orbicular type. Abs.)

ELECTRODESICCATION IN DERMATOLOGY. G. ARCHAMBAULT and A. MARIN, Bull. Soc. franç. de dermat. et syph. **35**:474, 1928.

The authors call attention to the advantages of electrodesiccation (Oudin current) over electrocoagulation (D'Arsonval current) and fulguration. They describe the technic of its application which consists essentially in contact of the needle with the tissue until a desiccatory effect is obtained. They employed this method satisfactorily in pigmented nevi, callosities, warts, stellate angiomas, keratosis senilis, xanthelasma, condyloma acuminatum and small basal cell epithelioma.

INFLUENCE OF INFECTION WITH "SPIROCHAETA HISPANICUM" ON SECONDARY SYPHILIS. M. HALTY, Bull. Soc. franç. de dermat. et syph. **35**:477, 1928.

With the thought in mind that infection with *Spirochaeta hispanicum* might show advantages over malaria therapy in syphilis, Halty injected this organism in eight cases in the secondary stage. His results were so unsatisfactory that he abandoned the investigation.

SURGICAL TREATMENT IN LUPUS VULGARIS. P. MOURE, Bull. Soc. franç. de dermat. et syph. **35**:486, 1928.

Moure approaches this subject from the surgical standpoint. He says that only circumscribed plaques in a quiescent state are applicable to that therapy. Total ablation is necessary. He believes that the wound is best left to granulate with grafting subsequently. He has renounced immediate suture because, in his experience, it was often followed by keloid and recurrence.

PARAFFINOMA OF THE ARM WITH METASTASES TO THE THIGHS. L. HUFNAGEL, A. HUFNAGEL and DE NABIAS, Bull. Soc. franç. de dermat. et syph. **35**:488, 1928.

The patient received numerous injections of camphorated oil only in the arm, but followed in five years by induration of the thighs. Four years later nodules appeared on the arms. The lesions were painful. Sections from both extremities showed the characteristic pathologic picture of paraffinoma. Metastasis of these lesions have been reported previously, but it is difficult to account for it. In the present case syphilis may have been a factor.

GENERALIZED NEVOCARCINOMA WITH DIFFUSE MELANOSIS. A. LERI and J. A. LIEVRE, Bull. Soc. franç. de dermat. et syph. **35**:496, 1928.

Cases of this nature are a great rarity. Three years previously the patient had had a pigmented nevus excised. This was followed by local recurrence and metastasis with diffuse pigmentation. A study of the patient is reported in detail. An attempt to demonstrate a melanin oxidase in the blood failed. At necropsy, the skin, liver and spleen were seeded with melanomas. Sections of the tumors showed amorphus melanoma (Masson's classification). The special feature of the case was the melanosis. The urine, blood serum and reticulo-endothelial tissue were loaded with melanin.

MICHAEL, Houston, Texas.

DERMATOLOGIC ABSTRACTS

The Journal of the American Medical Association

Purpuric Skin Manifestations Following Use of Merbaphen. A. M. Snell and L. G. Rowntree, Ann. Int. Med. **2**:97 (July) 1928.

Snell and Rowntree report three cases in which purpura appeared following the use of merbaphen, and one other case in which the drug may have been a factor in precipitating purpura.

Phagedenic Ulceration of Skin. M. G. Gillespie, Ann. Surg. **88**:248 (Aug.) 1928.

The majority of the cases already on record as well as the case reported by Gillespie followed operation for acute perforative appendicitis. The condition is characterized by its chronicity; its insidious progressiveness, being particularly rebellious to all treatment except wide excision; and its extreme sensitiveness. The constitutional symptoms are those of a chronic infection — loss of weight, haggardness, slight secondary anemia, low grade irregular fever and leukocytosis. The streptococcus and the staphylococcus seem to be the inciting organisms.

Reciprocal Effects of Concomitant Infections: III. Influence of Vaccinia and of Vaccinal Immunity on Reaction to Infection with Experimental Syphilis (Intracutaneous Inoculation). L. Pearce, J. Exper. Med. **48**:363 (Sept. 1) 1928.

An experiment is reported by Pearce in which was studied the effects of a concomitant vaccinal infection and of vaccinal immunity on the reaction to syphilis in rabbits induced by intracutaneous inoculation. The results obtained showed that the reaction was modified by both conditions. A vaccinal infection initiated at the time of syphilitic inoculation was associated with a defensive reaction of lessened efficiency, the ensuing syphilis being more severe than in control animals. A state of vaccinal immunity present at the time of syphilitic inoculation was associated with a reaction of heightened efficiency, the ensuing syphilis being very mild. These results are in harmony with those obtained in other experiments in which the intratesticular route of syphilitic inoculation was employed.

Use of Epinephrine in Allergic Diseases. R. M. Balyeat, J. Lab. & Clin. Med. **13**:1019 (Aug.) 1928.

Balyeat has given epinephrine with good results in cases of asthma, hay-fever and urticaria. Moderate sized doses of epinephrine in cases of true asthma complicated with hypertension, or in cardiorenal cases, will raise the systolic blood pressure but little. In at least 40 per cent of cases of hay-fever, systemic reactions are encountered. Balyeat says that by means of epinephrine the dosage can be carried sufficiently high to relieve the patients of their symptoms of hay-fever or asthma. It must not be forgotten, however, that when epinephrine is once used for this purpose, it must always be used. For the temporary relief of acute attacks of urticaria due to food poisoning, serum sickness or bites from insects, epinephrine in from 6 to 12 minim (0.36 to 0.74 cc.) doses will usually give relief. If, in cases of stings from insects or idiosyncrasies to foods or drugs, there are symptoms of severe abdominal pain, with swelling of the tongue or soft palate, epinephrine should be given in from 10 to 15 minim (0.6 to 0.9 cc.) doses hypodermically, and the throat should be swabbed with a 1:1,000 dilution. For the relief of the asthmatic attack the best results are obtained by giving the epinephrine at the onset and not after the patient has wheezed for four or five hours.

"Swimmer's Itch": Schistosome Dermatitis in Minnesota. R. C. Christenson and W. P. Greene, Minnesota Med. **11**:573 (Sept.) 1928.

Christenson and Greene found that snails infected with *Cercaria elvae* caused schistosome dermatitis, or the so-called swimmer's itch, in several small lakes in the vicinity of the Twin Cities.

Case of Congelation Dermatitis with Complete Destruction of Tissues. T. W. Thorndike, New England J. M. **199**:265 (Aug. 9) 1928.

The cause of the congelation in Thorndike's case was the icebag. The patient had a chronic interstitial nephritis. Following her last delivery, the woman was threatened, on both extremities, with a phlegmasia alba dolens. In order to relieve the pain, icebags were applied to the most tender areas. These areas were on the posterior aspect of the thighs, just above the popliteal space. Previous to admission, icebags had been in use constantly for a period of three weeks. The icebags were covered with a flannel, and salt was not used with the ice. When Thorndike first examined the patient, there was no sign of edema or local infection. On each thigh over the area where the icebags had been applied there was a lesion in the form of a large, sharply circumscribed, solitary bulla, arising abruptly from the normal skin and about the size of a large grapefruit. Each lesion covered a surface about the area of the palm of a hand. The blisters were filled with a serous exudate, which had not changed its character up to the time of rupture. There was no sign of an areola about the bullae, but instead there was a well defined line, about one-fourth inch wide, of alabaster whiteness. When Thorndike ruptured the lesions, the surface beneath was found to be necrotic. The ulceration from this time rapidly increased until finally all the dermal tissues sloughed away to the depth of the subcutaneous structures, leaving ulcers with indurated, sharply cut and not undermined edges, separated from the healthy integument by the white line mentioned. This girdle was the line of demarcation between the frozen and the healthy skin. The process of repair was so slow that a Thiersch skin graft was resorted to, and an uneventful recovery followed.

Study of Blood Tests for Syphilis. E. K. Kline, South. M. J. **21**:686 (Sept.) 1928.

Thirty thousand blood samples were tested by two or more methods and finally, in a selected series, the results were checked back to the clinical evidence by a careful canvass of the physicians who submitted them. Kline states that no single method of testing blood for syphilis is entirely reliable. A laboratory, in all fairness to both physician and patient, should perform several different tests before making a final report. It is recommended that these should include a highly sensitive complement fixation test together with a nonsensitive one, and a precipitin test, as a minimum. In the interpretation of such tests the basic fact should always be remembered that the function of a laboratory is merely to aid in the diagnosis and treatment of disease and that laboratory results must always be interpreted in the light of clinical evidence.

Treatment of Varicose Ulceration by Intravenous Injections of Quinine. K. P. Brown, Edinburgh M. J. **35**:472 (Aug.) 1928.

Brown has treated twelve patients with varicose ulceration by injection of a quinine solution. With the patient in the upright position a total amount of 2 cc. is injected on the first occasion, usually 0.5 cc. at four different points in the varix. These injections are continued at weekly intervals until thrombosis of the veins is complete. Ten patients have been completely cured. In one patient the varicose veins became thrombosed, but the ulcer, after slow healing, rapidly broke down again. This patient was one of the first to be treated; there was a history

of chronic edema of the leg of considerable duration, and therefore the patient was probably not a suitable one for this method of treatment. In the only other unsuccessful case, injections produced neither venous thrombosis nor healing of the ulcer.

ECCHYMOSES IN CHRONIC LEUKEMIA. J. SABRAZÈS, Gaz. hebd. d. sc. méd. de Bordeaux **49**:579 (Sept. 9) 1928.

In a typical case of chronic leukemia with thrombopenia in a woman, aged 60, Sabrazès found that both lower extremities were covered with ecchymoses and scattered petechiae. The fragility of the superficial vessels of the skin was so great that even moderate scratching produced an ecchymosis. This tendency to form petechiae and ecchymoses on the lower extremities under the influence of microtraumatisms was explained by the prolonged bleeding time (from five to six minutes).

THROMBO-ANGIITIS OBLITERANS. R. LEIBOVICI, Paris méd. **2**:21 (July 7) 1928.

Leibovici is of the opinion that in thrombo-angiitis obliterans one should not operate for a single trophic ulceration; gangrene of at least one toe must be present before surgical intervention is indicated. In cases of gangrene of a toe one should wait as long as possible for the elimination furrow. In patients who can afford prolonged treatment, amputation of the toe suffices. In poor patients or in patients in whom the furrow is not definite, it is better to amputate the foot at once using a heel flap, provided that the vitality of the latter can be demonstrated. In case of stationary gangrene involving the leg, a Syme operation can be tried; if the gangrene progresses, it is best to amputate the leg. Tests for the vitality of the leg determine whether a low or a high leg amputation should be performed. Gangrene which appears to be extending rapidly may even justify an amputation at the lower part of the thigh, particularly if the vitality of the leg appears doubtful. As a general rule, however, the more one sees of thromboangiitis obliterans the more conservative one becomes in its treatment.

TARGOWLA REACTION. A. M. FIAMBERTI, Presse méd. **36**:1094 (Aug. 29) 1928.

In a study of the cerebrospinal fluids of 500 patients with neuropsychosis, Fiamberti performed the Targowla test systematically, together with the following other tests: determination of total protein, leukocyte count, Pandy and Weichbrodt reactions, colloidal mastic reaction and fixation reaction. In many of these fluids the benzoin reaction, the gold reaction, the Takata and Ara reaction, and the reactions of Nonne-Appelt, Boveri and Noguchi were also performed. A positive Targowla reaction was obtained in all the cases except one case of paresis. In fact, this reaction was more sensitive than the others in several cases of paresis, one of which was in clinical and blood remission. In the other syphilitic conditions of the brain and spinal cord, likewise, the reactions were always positive, except in one case of taboparesis in which the condition had been stationary for years. This test, like all of the colloidal reactions in use at the present time, is not absolutely specific for syphilis; positive reactions in nonsyphilitic conditions are obtained about as frequently as with the benzoin and mastic reactions, but less frequently than with colloidal gold. On account of its great simplicity, the short time required to perform it and the absence of all preparatory manipulations, it is an essentially practical method for the clinician and easy to perform at the bedside of the patient. It is extremely important to use a good reagent; every time that a new paregoric elixir is used, one should verify its value by performing the tests with a control sample.

PRIMARY TUBERCULOUS LESION ON LIP. J. DUKEN, Arch. f. Kinderh. **84**:223 (June 15) 1928.

In this case there was no tuberculosis in the family, but shortly before his illness the child was in frequent close association with an adult with pulmonary

tuberculosis who had just left a tuberculosis hospital. A peculiar small ulcer with a grayish-white coating appeared on the right side of the upper lip. It resembled an impetigo lesion but showed no tendency to crust formation. It was the only skin lesion on the body. It did not respond to treatment for impetigo and it did not spread. Three weeks later the cervical glands on the same side swelled. They softened and were incised. Creamy pus escaped. The wound did not heal and fistulas remained for several months. The tuberculin test was not applied until four months after the initial symptom. It was then strongly positive, and the child was sent to the clinic. The ulcer on the lip was still present. Clinical and roentgenologic examinations of the thoracic organs were negative, and no manifestations of tuberculosis could be discovered elsewhere in the body. General ultraviolet irradiation and a complete change of diet without local treatment brought about a rapid change in the lip ulcer. At the end of two weeks it had become transformed into a bluish scar. The course of the entire disease speaks in favor of primary tuberculosis.

MERCURIC CHLORIDE IN TREATMENT OF PRURITUS. A. COHN, Deutsche med. Wchnschr. **54**:1295 (Aug. 3) 1928.

Very good results in the treatment of pruritus of the anus and vulva with solution of mercuric chloride are reported by Frank. The affected parts are washed with the solution morning and night, and later, in the case of the anus, after each defecation. The success of this treatment and the fact that other bactericides sometimes effect a cure speak for a nonspecific infection.

MULTIPLE SKIN CANCERS IN MICE FROM TAR FEEDING. H. FISCHER, München. med. Wchnschr. **75**:1151 (July 6) 1928.

Fischer observed that when tarred oats are fed to mice the fur of the animal soon becomes greasy. If the tar feeding is continued, the hair falls out. After about six months of feeding, benign papillomas appear — chiefly on the head and neck. Histologic examination shows that these are follicle epitheliomas resulting from a proliferation of the follicular epithelium. They enlarge and increase in number for a few months and then suddenly the surface becomes brownish and at the same time a wall-like edge develops around the periphery of the papilloma. Histologic examination of the changed lesion shows it to be a typical cancer of the skin. In animals which are given tar clysters, the same phenomena are observed. The author believes that the cancers which develop in mice following the feeding of tar by mouth represent a tissue reaction which is due to the excretion of the tar by the skin glands. This explains its origin in the epithelium of the follicle. In man the same mechanism of absorption of substances from the gastrointestinal tract with insufficient detoxication and with elimination at definite points may explain changes of an inflammatory nature which, when long continued, may produce malignant neoplasms at the point of elimination. These substances are possibly products of metabolism or of intestinal putrefaction.

EPIDEMIC OF INFECTIOUS ERYTHEMA. P. KISSINGER, München. med. Wchnschr. **75**:1381 (Aug. 10) 1928.

Nine of the ten cases reported by Kissinger occurred in a home for children threatened with tuberculosis. The house had fifty-one inmates, aging from 4 to 14 years. The patient in the first case appeared four and one-half weeks after the latest admissions. The condition in this case was considered a light case of measles. There was, in addition to the exanthem, fever, coryza, conjunctivitis, slight redness of the throat and swelling of the glands of the neck. Fever appeared only twice again in the series of ten cases, and in most of the cases coryza, conjunctivitis, swollen glands, etc., were also absent. The eruption, which in some cases resembled measles, in others erysipelas, was confined in most cases to the cheeks and the extensor surface of the arm, where it appeared in garland form. There were no complications, and in only one case did the illness last longer than

a week. One case occurred outside the institution. It was in a 4 year old child who had not come into close contact with the children of the institution. All the patients except one were girls. All had drunk raw milk.

NEW METHOD OF TREATMENT OF PRURITUS SENILIS. J. BORAK, Strahlentherapie **29**:245 (June 30) 1928.

Borak regards senile pruritus as a disturbance of metabolism, especially of proteins. These proteins and their end-products accumulate in the tissues and sensitize the nerve endings, which causes the itching — just as do the carbohydrates in diabetes. He advises irradiation of the hypophysis and the thyroid. Of ten patients so treated, after all other treatment had failed to give relief, eight gained relief within a week and have remained cured — a period of two and one-half years. Two young patients with general pruritus were likewise relieved. In cases of localized pruritus — vulvar, anal, facial, back — the treatment is of no avail. These patients must be subjected to local treatment.

SKIN LESIONS AS SYMPTOMS OF TUBEROUS CEREBRAL SCLEROSIS. A. KRISTJANSEN, Hospitalstid. **71**:687 (June 28) 1928.

Dermatologic examination made it possible to make the diagnosis during life in Kristjansen's patient, aged 27. He was degenerate mentally and had epilepsy. In the central part of the face hundreds of tumors appeared, from the barely visible to those of hemp-seed size, with two filiform tumors. Biopsy confirmed the diagnosis of sebaceous adenoma. On the neck and in the axillae were numerous subcutaneous fibromatous tumors varying in size from that of a hemp-seed to that of a pea, together with a number of molluscous nevi on the back of the hands and fingers, fibromas on the palms of the hands and soles of the feet and diffuse keratosis. In the lumbar and sacral regions there were cutaneous intumescences of the size of the little finger nail. Histologic examination of one of these tumors showed it to consist of connective tissue with the collagenic fibrils transformed into thick colloid strands deficient in nuclei and in places necrotic. The frequent occurrence of colloid tumors in the lumbar region in tuberous multiple sclerosis of the brain is noted.

Society Transactions

SAN FRANCISCO DERMATOLOGICAL SOCIETY

ERNEST K. STRATTON, M.D., *Secretary*

Regular Meeting, Feb. 17, 1928

HARRY E. ALDERSON, M.D., *Chairman*

A CASE OF MORPHEA. Presented by DR. COE for DR. ALDERSON.

A robust young woman, aged *22*, presented a typical roundish morphea lesion, about *2* cm. in diameter, on the left side of the neck. Just below it there was a smaller morphea spot, and about *2* cm. below that a small oval hypertrophic scar 0.5 cm. in diameter. The scar developed out of apparently healthy skin without any previous pyogenic or glandular lesion or history of the application of caustics.

The patient was first seen six years before presentation, at which time she was a small girl. At that time she had had the lesions for several months with no history of illness or any other disturbance that might have been associated with the disease. She was given thyroid extract at that time for several months without effect. In fact, the lesions slowly increased in size. It is interesting to note that the morphea lesions increased to twice their original size with the growth of the patient, who at the time of presentation was a buxom girl almost 6 feet (182 cm.) tall. She appeared to be perfectly healthy and no endocrine or other functional disturbances had been discovered. Locally, castor oil was being massaged into the lesions. It was proposed to remove the process surgically.

A CASE FOR DIAGNOSIS. Presented by DR. STRATTON.

A H., an unmarried woman, aged *22*, a stenographer, came to my office, on January 17, with an eruption, which was more or less limited to the extremities. The plantar surfaces of both feet as well as the palmar surfaces of both hands presented the greater number of lesions; there were a few, however, on the legs, thighs and buttocks as well as around the wrists and elbows and along the posterior nail-fold of several finger-nails. There were two types of lesions; one type began as a discrete vesicle about the size of a match head, which changed to a pustule, into which a hemorrhage occurred. This type was the most numerous and could be noticed in all three stages. The other type was an urticarial-like papule about the size of a large pea. The lesions burned, but did not itch. There was no tendency to grouping. The lesions healed leaving some pigmentation and scarring. There were also two warty excrescences on the plantar surface of the foot, which might be only coincidental.

In November, 1926, when the patient was visiting in Honolulu, both hands had become numb and swollen; there was a severe pain in both heels, and an eruption similar to that seen at the time of presentation appeared over both feet and legs. Six weeks later, on Dec. 31, 1926, she suffered from a severe pain in the lower part of the abdomen, which lasted one week, and again in July, 1927, a similar attack of abdominal pain occurred, which lasted three days. Both attacks were attributed to gastro-intestinal disturbances. She consulted two internists who after extensive laboratory and physical investigations made a diagnosis of purpura of unknown etiology. The laboratory reports, dated Jan. 13, 1927, consisting of a complete blood count, blood culture, Wassermann test of the blood, urinalysis and examination of the stools, were negative; however, a hemoglobin estimation made recently showed 50 per cent (Sahli).

DISCUSSION

DR. MILLER: The distribution and type of the lesions and scars over the hands, forearms, elbows and legs, together with the cold hands and feet, suggest the diagnosis of a tuberculid.

DR. WAY: Two distinct clinical entities seem to be present here, a dermatophytosis of the hands and feet, and an urticaria perstans, which appears to have been preceded by gastro-intestinal disturbances, although prurigo nodularis must not be overlooked.

DR. STIBBENS: I believe that the case is one of chronic papular urticaria due to the absorption of toxins from a chronically inflammed appendix. It seems to me the mode of onset and the continuance of the abdominal symptoms warrant this belief.

I have seen several cases in the Alameda County Health Center Clinic which bore a close resemblance to the condition seen here; all the conditions cleared up as soon as the intestinal symptoms were removed.

DR. CULVER: I am at a loss as to a diagnosis. The multiformity of the lesions of the skin would indicate a toxic element back of the eruption, possibly such as is so often encountered in the indefinite multiform erythemas linked up with the gastro-intestinal canal.

DR. ALDERSON: Some of the lesions are suggestive of those seen with systemic invasion of the gonococcus; however, I have no idea whether or not the patient is so infected. The history of pains and swelling of the joints, also severe pains in the lower part of the abdomen is at least suggestive. I have seen such lesions in a case of gonorrheal arthritis referred to me by a urologist. A biopsy would be well worth while.

DR. STRATTON: I am sorry you cannot see this eruption by natural light. The three diseases I thought of when first seeing this patient and studying her history were dermatitis herpetiformis, a tinea infection and keratoderma blenorrhagicum. The multiform type of lesion, including scars, the burning instead of itching and the tendency to remissions, suggested dermatitis herpetiformis. However, there is no grouping. The tops of several vesicopustules removed for microscopic examination were negative for fungi, as was also a local therapeutic test. As to the possibility of keratoderma blenorrhagicum, the patient denies having had a vaginal discharge. The history of pain in the lower part of the abdomen, pain in the heels, the warty and callous excrescences on the feet and the involvement of the finger-nails, however, makes me want to have a vaginal smear made before ruling out this disease. A biopsy done on one of the hemorrhagic vesicopustular type of lesions shows nothing strikingly different from what one would expect from clinical study; namely, the epidermis is irregular, acanthotic in some places, containing a vesicle here and there. There are marked edema in the subpapillary zone, subepidermal vesicles containing lymphocytes, leukocytes and red blood cells and a round cell infiltration around the deeper vessels.

A CASE FOR DIAGNOSIS. LUPUS VULGARIS? SYPHILIS? Presented by DR. TAUSSIG.

Mrs. Moore, aged 47, a housewife, presented an eruption that had been present on the cheek and nose for nine years. Apparently, treatment had been local only. The eruption consisted of erythematous papules with considerable secondary infection and crusting. Most of the anterior half of both cheeks presented scarring wherever there were no active papules. There was a group of tiny, brown-yellow, translucent nodules on the lower part of the left cheek. The anterior half of the nose was enlarged and reddened, with a small notch and a few small crusts at the tip. Within the left nostrils, there was a granulomatous process mostly involving the roof of the nasal passage. The septum was involved

on the left side only, and there was a small perforation posteriorly. The hard palate and mouth were normal.

Twenty years before examination the patient had had a miscarriage at two or three months and another the following year at four months after lifting something heavy. The first husband had died of tuberculosis. The second husband had died of pneumonia; there had been no pregnancies while she lived with him.

The Wassermann reaction of the blood was negative. The results of the Kahn test were negative. A biopsy had not been done.

DISCUSSION

DR. WAY: Because of the location and the appearance of the lesion, I would consider the diagnosis of lupus vulgaris as the more probable one, but the question of malignancy should be ruled out.

DR. TAUSSIG: The patient was presented because of the history of miscarriages and the appearance of the lesions when she first reported to the clinic; the perforated septum suggested the diagnosis of syphilis to some of the staff at the clinic. My impression is that it is lupus vulgaris.

A CASE OF URTICARIA PIGMENTOSA WITH NUMEROUS TELANGIECTATIC AND PURPURIC LESIONS AT THE TIME OF ONSET THIRTEEN YEARS AGO. Presented by DR. WAY for DR. ALDERSON.

The present picture is that of a typical urticaria pigmentosa in a robust man, aged 39. About two years before this presentation, the patient was presented to this society, at which time the predominating lesions were telangiectatic and petechial. The urticarial element was not particularly marked at that time. The lesions, however, became redder and itched on exposure to heat. Naturally, one would expect this in telangiectatic lesions. Sections of a lesion did not show the features of urticaria pigmentosa, but it must be remembered that there are occasional examples of this condition in which many mast cells are not found.

Before entering the army, the patient was a professional ball player. He was always well except for occasional "bilious attacks" possibly due to alcoholism at that time. In 1915 (aged 26), his mother noted numerous "tiny reddish spots" across his shoulders. These gradually increased in number. In 1918, he had influenza and pulmonary tuberculosis. After a number of months, a diagnosis of "arrested tuberculosis" was made by an army surgeon. He saw severe service in France and was discharged in May, 1919, in good condition (barring his skin trouble). The process became much worse in active army service in France and it was then thought that it was a "cootie eruption."

After a lapse of three years, the patient returned because the skin lesions were increasing in number and spreading to other portions of the body heretofore uninvolved, such as the forearms, neck and legs. Many of the older macules were intensely pigmented, while those of more recent origin, on slight friction, became redder and distinctly elevated, resembling the urticarial wheal. At the time of presentation the condition of the skin was typical of urticaria pigmentosa.

DISCUSSION

DR. ALDERSON: It is undoubtedly a case of urticaria pigmentosa, but when first seen by me, nine years ago, the lesions were definitely telangiectatic and petechial. Factitious urticaria was not noted at that time. Two years ago, these lesions were still noticeable, and the urticarial reaction was easily demonstrable but was not particularly pronounced. Mast cells did not appear in the sections then, but probably they would be seen in large numbers in the tissue at the present time.

DR. MAYNARD: This patient presents the clinical picture of urticaria pigmentosa in the adult. The morphology and reaction are typical. As regards

pathologic changes, the picture of masses of mast cells more or less perivascularly placed is not often seen in urticaria pigmentosa in adults, and the picture of a scattering of cells or almost none at all is more common. My impression is that urticaria pigmentosa in adults is more common than has been heretofore suspected.

DR. WAY: It has been my observation that most conditions of urticaria pigmentosa, regardless of the age of the patient, show mast cells. The selection of the area for biopsy, with reference to the age of the individual lesion, may account for this.

Dr. Maynard's remark about urticaria pigmentosa in adults being rather common seems to be justified, as we have had four typical cases during the past three months.

FAVUS. Presented by DR. EPSTEIN.

H. C., a Chinese girl, aged 16, entered the University of California Clinic on Jan. 19, 1928, with an alopecia of the scalp in areas over the vertex, with atrophic scarring. There were some crusts, and at the periphery a few typical "sulphur cups" were present. The patient had had the condition since infancy. She was born in China and had come to the United States two years previously. Microscopic examination of one of the "cups" showed a mass of fungus, *Achorion schönleinii.*

DISCUSSION

DR. TAUSSIG: We see a moderate number of Chinese patients at the clinic, but this is the first case of favus I have seen among them. I would like to know if it is common among the Chinese.

DR. WAY: Fungus infections of the scalp are common in China. Although the trichophyton is usually the offender, favus is more frequently seen in China than in America.

DR. EPSTEIN: A half-strength Whitfield's ointment has cleared up the secondary crusting and scaling.

MORPHEA. Presented by DR. TEMPLETON.

Mrs. M. R., a private patient, aged 40, a housewife, Portuguese, complained of patches of hardened skin over the buttocks of two and a half months' duration. Twenty months previously this patient weighed 287 pounds (132.2 Kg.), and was pregnant. She was put on a 900 calorie diet by Dr. Stark and lost 102 pounds (46.3 Kg.) in six months. There was also a low amount of hemoglobin in her blood at that time (52 per cent), and she was given about thirty or forty injections of iron cacodylate. The delivery was uneventful.

The Wassermann reaction was negative. The basal metabolism was plus 7 per cent. Arsenic was not found in the urine. The results of the general physical examination were negative, except for carious teeth and extreme obesity. Over both buttocks were typical patches of morphea of an ivory color, with violaceous borders. The center of one of these areas was ulcerated.

DISCUSSION

DR. SCHOFF: Dr. Throne, of the New York Skin and Cancer Hospital, has shown some remarkable results in the treatment of patients with general and localized scleroderma with sodium thiosulphate; he bases his therapy on the laboratory observation of retention of arsenic. Many patients do not show arsenic in the urine until the arsenic has been set free by the sodium thiosulphate. With the late development of the morphea and following the administration of arsenic, it would be interesting to ascertain whether there was retention of arsenic and to try the sodium thiosulphate therapy in this case.

DR. TEMPLETON: In this patient's history two factors which should be considered as possible etiologic agents were present prior to the development of morphea. First, was administered a considerable amount of arsenic. Dr. Schoff had referred to Throne's work on this subject. This patient's urine showed no arsenic prior to or following the intravenous use of sodium thiosulphate. Second, an extreme loss of weight occurred immediately prior to the development of her trouble. It is a temptation to try to link this up with the pathologic picture of morphea, which in part consists of a disappearance of the cutaneous and subcutaneous fat in the area involved.

GENERALIZED PRURITUS IN A PATIENT WITH LIVER FLUKE INFECTION. Presented by DR. MILLER.

W. W., a Chinaman, aged 37, a janitor, had been under my care since July, 1927. He complained of a general pruritus which troubled him any time of the day or night. This had been present for two or three months. Examination showed excoriations all over the body but no other lesions. Otherwise, this examination showed nothing of interest except a moderate general lymphadenopathy. Examination of the blood showed: hemoglobin, 91 per cent; red blood cells, 5,010,000; white blood cells, 13,600; polymorphonuclears, 80 per cent; lymphocytes, 1 per cent; large mononuclears, 1 per cent; transitionals, 2 per cent, and eosinophils, 16 per cent. The results of the urinalysis were negative. The Wassermann reaction was negative.

In January, 1928, the ova of *Clonorchis sinensis* (liver flukes) were found in the stool and duodenal contents.

DISCUSSION

DR. TEMPLETON: The determination of the cause of generalized pruritus with no visible lesions is extremely difficult. As Goeckermann recently pointed out, it requires a complete physical examination and study of the patient. In regard to the intestinal infestation, I have seen a number of orientals suffering from pruritus or eczema who showed *Entameba histolytica* in their stools.

DR. WAY: About 20 per cent of the orientals are infected with *Clonorchis sinensis*, but lesions of the skin are extremely rare. In a series of forty-nine patients examined by me for a possible involvement of the skin, all observations were negative and none gave a history of having had a pruritus.

DR. MILLER: This patient was presented to get opinions as to the possible relationship of the generalized skin eruption and the liver fluke infection. This was the only important observation during a careful and thorough physical examination. We are all familiar with the marked pruritus that is frequently seen with a mild icterus. In a liver tubule infection of this type I can conceive of some disturbance in liver function and the deposition of bile salts in the skin in sufficient amounts to cause itching. Whether it actually occurs or not, I do not know.

A CASE FOR DIAGNOSIS. Presented by DR. TEMPLETON.

Elsie F., an Italian school girl, aged 8 years, presented ulcerovegetative lesions on the dorsum of the foot at the base of the right great toe and the base of the left thumb. The areas were, roughly, 1½ inches (3.77 cm.) in diameter and were sharply marginated. The duration of the lesions was four months. The first lesion appeared at the base of the right great toe after the foot had been abraded by new shoes.

The results of the general physical examination were negative. The Wassermann reaction was negative on two occasions. Repeated examinations for fungi were negative. There was no history of the ingestion of drugs prior to the onset, except a laxative, the nature of which could not be ascertained.

DISCUSSION

DR. MILLER: The lesions are suggestive to me of a bromoderma. I do not think it can be ruled out by simply asking the patient if she has taken bromide. She may have taken it and not known it. Has the urine been tested for bromine?

DR. WAY: Provided the possibility of the case being one of bromoderma is ruled out, I would suggest dermatitis vegetans as a possible diagnosis.

DR. CULVER: The ulcerative lesions on the foot are not unlike similar lesions which are sometimes found to be due to the ever present pyogenic micro-organisms which make the skin their habitat.

DR. STRATTON: I favor the diagnosis of dermatitis repens, and would suggest removing the undermined epidermis surgically and applying wet dressings of potassium permanganate.

DR. TEMPLETON: I appreciate and shall follow Dr. Miller's suggestion, although I am more inclined to consider these lesions mycotic or bacterial infections rather than bromodermas.

Bromine was not found in the urine when tested for by Wiles method. Fungi could not be cultivated on Sabouraud's medium.

A CASE OF TREATED TUBERCULOSIS CUTIS VERRUCOSA OF THE WRIST WITH A TYPICAL MILKER'S NODULE ON THE INDEX FINGER. Presented by DR. WAY.

S. Y., a young man, aged 20, had a typical lesion of tuberculosis cutis verrucosa on the wrist, which had been treated by the monopolar, high frequency current plus the quartz light and was healing nicely. There was an additional lesion at the base of the right index finger which was slightly elevated, more or less rounded, and rather suggestive of an erythema iris.

The condition on the wrist was noticed some five months before presentation and that on the finger about three months. The lesion on the finger was rather typical in appearance of the so-called "Milker's Nodule" or "Melkenknoten," and it was interesting to note that the patient had for some time milked tubercular cows, prior to the onset of the present complaint.

DISCUSSION

DR. TEMPLETON: I believe that thorough electrodesiccation, as practiced by Dr. Way, in this case, is the best treatment for small areas of cutaneous tuberculosis. The heat generated within the tissue destroys *B. tuberculosis*. Such destruction is not accomplished by radiation, curettage or surgical excision. This method is not liable to be followed by any dangerous sequelae, such as may occur after the necessarily enormous doses of x-ray or radium used in treating these lesions. It is well to desiccate at least ¼ inch (0.63 cm.) of normal tissue around the growth. I recently treated an area of this condition the size of a quarter. Healing has been uneventful although somewhat slow.

DR. MILLER: I did not realize that tuberculous cows were being milked in this state. It was my impression that they were slaughtered when the diagnosis was made. I believe that all patients with this type of tuberculosis of the skin should have an examination of the chest before local therapy is advised. Many of them will be found to have pulmonary tuberculosis.

DR. WAY: I certainly agree with Dr. Templeton that electrodesiccation seems to work wonders in these cases. In tuberculosis cutis verrucosa, when a large area is involved, better results are obtained and there is less scarring if one does not attempt to treat the entire lesion at one time.

In regard to Dr. Miller's statement about tuberculous cows being milked in this state, we all know that as it is practically impossible to diagnose tuberculosis in cows at the actual onset of the disease, a farm hand will be subject to infection as long as cows are milked.

NEW YORK ACADEMY OF MEDICINE, SECTION ON DERMATOLOGY AND SYPHILIS

J. J. ELLER, M.D., *Secretary*

Regular Meeting, April 3, 1928

E. R. MALONEY, M.D., *Chairman*

KERATOSIS FOLLICULARIS. Presented by DR. CANNON.

R. L., a white laborer, born in this country, entered the City Hospital on March 29, 1928, complaining of a gradually increasing eruption since August, 1924. He had first noticed a dry, scaly condition on the back of the hand and on the forehead at the edges of the hair, which gradually extended over the entire scalp, causing considerable scaling and slight itching. One year previous to presentation the eruption appeared on the back, followed by similar lesions on the chest, abdomen, axillae and groins. He said that from the beginning the lesions were scaly papules varying in size from that of a pinhead to that of a millet seed. The family history was negative.

The patient showed a generalized eruption, most marked on the scalp, forehead, around the neck, along the spine, chest, sides of the abdomen, in the groins and on the backs of the hands. Most of the lesions were discrete, cornified, elevated papules of a slightly grayish to yellowish color, varying in size from that of a pinhead to that of a millet seed; some were dry and others were slightly oily. Some of the papules showed slight telangiectasia. The lesions on the scalp and forehead were diffuse, confluent and red and were covered with thickened scales of cornified material. The backs of the hands showed numerous elevated, discrete and confluent flat-topped and slightly red verrucous papules. On the front of the wrists and forearms, there were flat-topped, lichenified lesions the size of a pinhead simulating those in cases of lichen planus. The lesions in the groins were vegetating and whitish. The nails were thickened, blunt at the ends, with light gray linear striations. The mucous membrane of the hard palate presented numerous light gray, elevated papules the size of a pinhead. There was a slight generalized glandular enlargement.

The Wassermann reaction and urinalysis were negative. The blood count was normal. The histologic diagnosis was keratosis follicularis.

DISCUSSION

DR. POLLITZER: The case is typical.

DR. HOPKINS: I saw a section from this case today. It showed a lesion fairly typical of Darier's disease. It showed marked hyperkeratosis with distention and plugging of the follicles. Beneath this the epidermis was disorganized and contained cells resembling the corps ronds. There was practically no inflammatory reaction in the corium.

LEUKEMIA OF THE FOREHEAD. Presented by DR. BECHET.

J. H., a man, aged 55, presented a firm, dark-red tumor, the size of a palm, on the nose and forehead, of eighteen months' duration. It was raised about one fourth of an inch above the surrounding skin. This was the only lesion the patient had ever had. The microscopic examination showed an extensive infiltration of the derma, also of the subcutaneous tissue, by closely packed lymphocytes, with the disappearance of all but a few strands of collagen fibers between the masses of these cells. The epidermis was somewhat thin with flattening of the papillae. There was some hyperkeratosis.

The examination of the blood showed: red blood cells, 3,200,000; platelets, 100,000; hemoglobin, 70 per cent; bleeding time, three minutes; white blood cells,

44,000; polymorphonuclear neutrophils, 23 per cent; lymphocytes, 9 per cent; lymphoblasts, 64 per cent; mononuclears, 1 per cent (400 cells counted).

Special stains showed all the large immature cells to be lymphoblasts, so that the blood picture corresponded to that of a lymphoid leukemia.

POIKILODERMA VASCULARIS ATROPHICANS. Presented by DR. TULIPAN.

A. W., a housewife, aged 44, from the New York University and Bellevue Skin Clinic, gave a history of having had an eruption for twenty-two years. Scattered over the abdomen, back, arms, legs, neck and temples were irregularly outlined erythematous, pale pinkish plaques, not infiltrated, and covered by fine scales. Some of these lesions were fairly well circumscribed; others had coalesced to form large patches. On the inner side of the arms near the axillae, over the breasts, and in the inguinal regions, were parallel, thin and pliable linear scars, with telangiectasia and pigmentation interspersed throughout these areas. The condition resembled chronic radiodermatitis.

The results of the differential blood count, Wassermann test and urinalysis were negative. Biopsy of an acute plaque on the thigh showed inflammatory tissue.

DISCUSSION

DR. HIGHMAN: It is almost unfair to discuss this case. It is certainly a primary atrophy, and a rare one, but no one had more than a cursory view of the patient, and there is almost as much reason to agree as to disagree with the diagnosis on this momentary inspection. After the case is worked up, it should be presented again for further study.

DR. TULIPAN: The only thing that might have made the diagnosis doubtful was the lesions on the back, which resembled psoriasis. The patient had not complained of any itching, and the biopsy of one of the patches on the thigh showed inflammatory tissue only. The lesions on the breasts and abdomen resembled radiodermatitis, although the patient said that she had never had roentgen-ray therapy.

VON RECKLINGHAUSEN'S DISEASE. Presented by DR. FELDMAN.

A woman, aged 30, from the Post-Graduate Skin Clinics, gave a history of having received a slight injury on the abdomen when about 4 years of age; a tumor developed on the spot which continued to grow slowly. Several years later, lesions, which she called freckles, appeared. These also increased in size and numbers.

There was an extremely large, flat, soft and pendulous tumor situated on the left lower quadrant of the abdominal wall, about 4 or 5 inches (10.16 or 12.7 cm.) in diameter. On palpations its texture was irregular, giving the impression of a flabby breast. The color was brown. In addition to the tumor, there was a large number of small brown macules scattered over the front of the abdomen, chest and neck. The same condition was seen on the back, on which, in addition, there were numerous larger pigmented patches. Some of them were café au lait in color, others were darker and bluish. Several small, soft fibromas were present.

DISCUSSION

DR. FOX: Will Dr. Feldman tell us something about the mentality of this patient, as there has been much said about the lowered mentality in these cases?

DR. FELDMAN: The patient showed a low mentality; she was still in grammar school at the age of 16. She is comparatively dull, but, of course, we see many persons without von Recklinghausen's disease who are no brighter than she. I would like suggestions relative to the treatment of the tumor which bothers the patient considerably.

DR. POLLITZER: There is no reason why the tumor should not be excised.

DR. LEVIN: We should not speak too lightly of these operations for the removal of tumors. Although the removal of the tumors themselves is not accompanied by any danger, complications may arise during or after the operation. For this reason, I think that the patient should receive a thorough examination in order to rule out any possibility of such complications, especially in the nervous system. For instance, I saw a case in which the lesion was to be removed for cosmetic reasons; while on the operating table the patient showed dangerous symptoms, and died within a short time after being removed from the operating room. Autopsy revealed that a tumor of the vagus nerve had been present, and death was caused by the shock of the operation. As for endocrine therapy, I have employed it in several cases, but without any effect on the lesions of the skin, although at times improvement has been observed in the general condition.

DR. POLLITZER: Referring to the patient mentioned by Dr. Levin, the question is, what was the cause of death? The fact that there was a neurofibroma of the vagus nerve could hardly be accounted the cause of her death. I wonder whether she had a local or a general anesthetic; if the latter, that might have had something to do with the sudden fatal ending.

DR. LEVIN: Death was not due to the effect of the anesthetic itself, but rather was the result of irritation and shock to the nervous system.

DR. FEIT: I know of the removal of a similar tumor by endothermy; it not only returned, but was larger than the original tumor.

DR. HIGHMAN: As a matter of fact, in the study of von Recklinghausen's disease, we should have more histologic examination. So far as the mortality is concerned—considering the number of excisions made in hundreds of cases—I imagine that the mortality is not likely to be high. I think it is relatively safe to excise this tumor and give the woman the opportunity of not feeling self conscious about such a mass.

MULTIPLE HEMORRHAGIC SARCOMA OF KAPOSI. Presented by DR. HALPERIN.

J. G., a Jewish waiter, aged 44, in this country for fifteen years, from Dr. Howard Fox Clinic, had no family history bearing on the condition for which he was presented. His illness began about eight years before presentation with purple spots on one hand and both feet, the lesions gradually increasing in size and number until the lower extremities and both hands became involved. There were purplish, infiltrated nodules varying in size from that of a pinhead to that of a pea on both legs, buttocks, arms and hands. The lesions on the left leg were deeply pigmented. These lesions were closely aggregated and in some places had coalesced to form large plaques. On the toes of the left foot, there were numerous verrucous lesions, and there was elephantiasis of the left leg. The hands presented diffuse violaceous and edematous infiltration. There was a general adenopathy. The body and face were normal.

Histologic study confirmed the clinical diagnosis.

TUBERCULOSIS CUTIS OF THE RIGHT BREAST. Presented by DR. BECHET.

C. S., a white man, aged 56, said that the eruption presented had begun six years previously, six months after an operation at the same site. The lesion had never healed but, on the contrary, had slowly increased in extent. On the right breast, there was a plaquelike, indolent, infiltrated patch, covered at its lower border with a verrucous, papillomatous overgrowth. It was about 3 inches (7.6 cm.) in diameter. On the patch and at its periphery, there were a number of superficial vesiculopustular lesions, apparently from a secondary dermatitis. A piece of tissue had been excised during the day for histologic examination.

DISCUSSION

DR. ABRAMOWITZ: Despite the duration of six years, I am inclined to the diagnosis of some form of epithelioma, probably Paget's disease.

DR. CANNON: I, too, think the lesion suggestive of Paget's disease, despite the duration and the absence of glandular enlargement. The color and absence of papules do not suggest tuberculosis.

DR. MONTGOMERY (Mayo Clinic): I think that the case should not be confused with a superficial epitheliomatosis or a benign erythematoid epithelioma (Little). It is either Paget's disease or a metastatic carcinoma involving the breast. The patient has a large firm gland in the axilla. A diagnosis, however, can be arrived at only by a microscopic examination of the sections.

DR. BECHET: I agree with the gentlemen who discussed the case that a biopsy is essential; yet there are several definite symptoms favoring tuberculosis cutis: (1) the disease began six years ago, six months after an operation on the ribs, which possibly might have been found tuberculous; and (2), the papillomatous surface of the lesion, particularly at its edges.

The points against Paget's disease—besides those just enumerated—are the slow growth of the lesion, the absence of a sharp border and the apparent indolence of the inflammatory changes. On the clinical appearance alone I would certainly prefer tuberculosis to Paget's disease in considering the diagnostic possibilities.

SARCOMA CUTIS. Presented by DR. SAUNDERS.

A. S., a man, aged 37, from the University and Bellevue Clinic, gave a history of having had a penile lesion in 1916. He did not show any evidence of secondary manifestations, treatment or tests of the blood. On Feb. 24, 1928, the Wassermann reaction of the blood was negative.

In February, 1926, he had noticed a nodule on the right forearm, which had grown steadily in size until it reached the size of a filbert. It was removed in July, 1927. About three months later, four small nodules appeared—one on the right forearm, two on the left forearm and one on the left thigh.

When first seen, on Feb. 24, 1928, several firm subcutaneous nodules varying in size from that of a pea to that of a bean were present on the forearms; on the left thigh, there was a similar lesion which was softer and about the size of a hazelnut; this lesion felt like a lipoma.

Two lesions were removed. The histologic observations substantiated the clinical diagnosis.

DISCUSSION

DR. SIMPSON: I agree with the diagnosis in view of all the metastatic lesions, but the lesion in the groin felt more like a lipoma.

DR. BECHET: The case well illustrates the value of a biopsy, for some of the lesions look exactly like lipomas.

DR. BLOOM: The case impresses me as an interesting one. When the patient came to the clinic I diagnosed the tumors as lipomas because of the consistency and the lobulation. The first biopsy included the skin over the tumor and a part of the tumor itself. Dr. Highman, who examined the slide, found spindle cells in the trabeculae of the fat layer of the section and thought that the lesion was not removed in the right spot. For a second examination, we therefore enucleated another subcutaneous tumor which looked and felt like a lipoma. The microscopic picture was the same as in the first, except that there was only fat tissue and not epidermis or corium, for we did not remove the skin over the tumor. A third tumor, removed by enucleation, looked macroscopically like a lipoma, although it was of a firmer consistency than the previous tumor. The histologic picture looked to me identical with that of the previously examined lesions.

DR. CANNON: Clinically, the tumors are suggestive of lipomas, and I do not believe I should have made the diagnosis of sarcoma. It is interesting that when a lipoma is excised it is apt to recur in a malignant form. I should like to know

the duration of this particular lesion and whether at any time before the patient has had one of these tumors removed or whether the growth has been subjected to irritation.

DR. HIGHMAN: When I saw the specimen from the first biopsy I was astonished. Of course, Dr. Bloom enucleated a subcutaneous tumor and thought he was dealing with an ordinary lipoma. Clinically, any one would so have thought. I found, in the trabeculae of the adipose tissue, a type of infiltration resembling fibroblastosarcoma or an extremely narrow spindle-cell type of sarcoma. I asked whether another specimen could be obtained, and it was corroborative. Then I had an opportunity to see the patient myself and went over him carefully, finding several lesions harder than those we associate with pure lipoma. One of these from the right forearm was enucleated. The nodule when free was hard and at the same time elastic — much harder than a pure lipoma would have been; it was not stony hard, but elastic, and when the lesion was cut grossly, there was the appearance of the surface seen in solid growths. A report of the microscopic appearance will be made. I believe that we are dealing with something more than a pure lipomatosis, on clinical evidence, for with continuously increasing frequency new lesions are appearing in the subcutaneous tissue, and they are hard. Probably Dr. Cannon's inquiry as to whether the patient had suffered from surgery or from ordinary trauma may suggest a clue. I believe that he is actually getting metastases and that he has spindle-cell sarcomatosis.

PROFESSOR BLOCH: Is it not possible that all these curious lesions might be produced by self given injections of morphine? There were unusual microscopic changes, and sarcoma might be confused with them.

DR. HIGHMAN: I think the possibility mentioned by Dr. Bloch should be considered. I have observed several morphine addicts who gave themselves injections, and it was always in an area which they could reach with whichever hand was usually used by them. This man is right-handed, and with right-handed persons I have found that the regions not easily reached by the right arm were not the site of injections. This last lesion, which could not have been reached by his right hand, was removed from the right forearm; of course, he may be able to use both hands. Finally, he does not make the impression of a morphine addict. I did not examine his pupils but I had no impression that they were small. Nevertheless, Professor Bloch suggests a clue which should be followed.

DR. SCHEER: About six years ago, when I examined patients at the workhouse for the Health Department, I had occasion to see many morphine addicts, and the lesions always showed distinct bluish points or macules owing to the deposit of metal from the needle into the skin; I think that is one of the characteristic conditions. Some years ago, Dr. Gottheil described a similar condition which he called blue atrophy of the skin. The case presented does not show this.

DR. FOX: When I first saw the patient, I was convinced that he had at least one lipomatous lesion on the side of the trunk, but I thought that the other lesions might be fibrolipomas. As to the question of drug addicts, I would like to show a photograph of a morphine addict in which at first glance the diagnosis appeared to be acne indurata. It was a perfect picture of a severe case of acne covering two thirds of the back. One would not have thought that those lesions could have been self-inflicted until the patient demonstrated the manner in which he injected the drug into the tissue of his back.

DR. SAUNDERS: The first lesion appeared in February, 1926, and gradually developed until July, when it was removed. Three months later, four other lesions appeared. All the lesions on the upper extremities were much firmer than the one on the leg and were not even suggestive of lipoma. The first lesion studied microscopically was removed in February, 1927. Dr. Highman confirmed my diagnosis of sarcoma. The fact that this lesion was the last to develop and was of short duration indicates that the condition was sarcomatous from the beginning.

BROMODERMA. Presented by DR. CANNON.

R. G., an Italian housewife, aged 80, was admitted to the City Hospital on March 21, 1928, on account of a sore on the face which had been present for about four weeks. It began over the right malar eminence as a small papule, and gradually spread over a large portion of the right cheek. Soon afterward, similar sores appeared on the right hip, the outer aspect of the right knee and thigh and under the left knee. The patient did not give a history of having taken drugs prior to the appearance of the sores — though as she spoke imperfect English, it was difficult to tell definitely whether or not she had done so.

Over the right cheek, there was an irregularly outlined, roughly triangular lesion about 2 by 4 inches (5 by 10.16 cm.); this appeared rather superficial and was covered with a dark brown laminated crust. Around the margins of the sore was a zone of hyperemia, and from beneath the edge of the crusted area there was a slight serous discharge. On the right hip, the outer aspect of the right thigh and knee and on the inner aspect of the left knee were similar, roughly circular lesions, the size of a dollar, covered with thick dark brown crusts and surrounded by margins of erythema. The sores were extremely painful on palpation. Over the left eye, there was an apparently healed ulcer which had been present for a number of years.

The results of the urinalysis showed iodine. The Wassermann and Kahn tests were negative.

DISCUSSION

DR. FOX: I recently showed a case of bromoderma in a woman who had taken bromoseltzer, at least 1 teaspoonful a day — often more — for ten years. The case puzzled me at first, for there were a number of scars suggesting Bazin's disease. It was found, however, that the scars were due to treatment by curettage of the lesions.

DR. ETTELSON: I would like to report a case that was reported at the Medical Society in Portland — an extremely interesting one. A child, aged about 4 years, who had molluscum contagiosum, was brought to me, and I removed some of the lesions with a curet. After taking care of her for two or three weeks, she developed whooping cough, and the attending physician gave her bromides. All of the lesions which had not healed began to develop into granulomas. We watched the condition for some days and soon found that we were dealing with a bromoderma. The lesions soon disappeared under the influence of injections of sodium chloride.

DR. FOX: We tried the simple test for bromide in the urine suggested by Dr. Belote of Dr. Wile's Clinic. The test worked perfectly well in urine to which potassium bromide had been added, but not with the urine of the patient. Even after we had given injections of 200 cc. of physiologic solution of sodium chloride, in order to mobilize the bromine, we were unable to show the presence of bromine. I would like to know whether any one has been successful with this test.

DR. HIGHMAN: I tried it but without success.

PSORIASIS ARTHROPATHICA. Presented by DR. GROSS.

J. T., a Russian, aged 25, had been in the orthopedic ward of the Hospital for Joint Diseases, service of Dr. Harry Finkelstein, since Jan. 2, 1928. He gave a history of psoriasis since the age of 14 years. Up to four years prior to presentation he had felt physically well. About that time, he was sick with arthritis associated with fever. Despite a tonsillectomy, the arthritis kept spreading to other joints. The results of a Wassermann test taken at that time were negative. The patient said that the arthritis was accompanied by a severe eruption of psoriasis. After about three months the arthritis subsided, leaving deformities on several fingers of both hands. He remained well up to September, 1927, when he suffered a new and more severe attack of arthritis. The psoriasis, which was present in mild form, became much worse, and for the first time the eruption appeared on the feet, especially on the soles. The Wassermann test taken at the

beginning of this attack gave a reaction of 4 plus. The patient was given four injections of neoarsphenamine and a few injections of bismuth. Other treatments received during this period were twenty-four injections of sodium salicylate intravenously, sodium iodide and injections of a mixed vaccine. The patient said that to his knowledge he had not had venereal infection.

Examination showed a diffuse psoriasis of a seborrheic type on the scalp and sternal regions. There were smaller and larger patches of a more infiltrated type scattered over the abdomen, upper extremities and legs. There was heavy scaling on the penis. The most extensive eruption was on the feet. The toes were covered with heaped-up, whitish, chalklike scales. On the soles were a number of lesions the size of a dime, consisting of thick, waxy, yellowish scales on an erythematous base. There was a similar lesion on the dorsum of the left foot. The toe-nails showed a marked subungual hyperkeratosis. The finger-nails had less hyperkeratosis, but there was marked pitting.

The involvement of the joints was extensive, especially of those of the fingers, wrists, toes and knees. A roentgenogram showed distinct synovitis of the left knee, with erosion of the bone. There was a slight atrophy from disuse. The bones of the hands and wrists showed pronounced atrophy and narrowing of the joints and peri-articular swelling.

Examination failed to locate the foci of infection. The viscera were normal. The blood count was normal. The chemical analysis of the blood showed: urea nitrogen, 23 mg.; creatinine, 2.5 mg.; uric acid, 2.8; sugar, 86 mg. per hundred cubic centimeters of blood. The Wassermann reaction of the blood was 4 plus. The spinal test showed: globulin, negative; Wassermann and colloidal gold, negative; three cells.

DISCUSSION

DR. CHARGIN: I should like to raise the question of whether we are dealing, in this case, with psoriasis arthropathica or with psoriasis with concomitant polyarthritis. I am prompted to make this suggestion for several reasons: (1) the psoriasis in this case long antedates the arthritic condition; (2) the type of lesion so often observed in psoriasis arthropathica — namely, the waxy translucent papule — is absent; (3) in recurrent attacks of psoriasis arthropathica either the involvement of the joint or the eruption may appear first, but it is common for both to take place at the same time. These factors seem to be absent in this case, and I would therefore regard it as a case of psoriasis and polyarthritis occurring at the same time but independently of each other.

DR. HIGHMAN: It seems to me that the concomitance of two groups of phenomena such as psoriasis and arthropathy — both of which are common — might be associated without being related, and I do not know by what standard one can determine such relationship. There are patients with psoriasis with chronic inflammation of the joints, and that is all that can be said on the subject. We have to thank our English brethren of two generations ago for associating the conditions as they have been associated, for in those days in England everything was ascribed to the gouty diathesis. A certain number of patients with psoriasis are unquestionably observed with this kind of chronic arthritis. As a matter of fact, I had an experience a few years ago with a young man whose psoriasis was associated with joint symptoms much as Dr. Chargin has outlined and I was surprised to see his psoriasis vanish when I gave him colchicum on the basis of my readings in old English dermatology. Because there may be association of such common conditions, I do not see why psoriasis and joint symptoms need necessarily be dubbed psoriasis arthropathica — another piece of gratuitous pedantry.

DR. FOX: I have long been waiting to see a case of psoriasis arthropathica such as Dr. Chargin describes. I have now two patients in Bellevue Hospital with typical arthritis deformans of the hands associated with psoriasis. I recently had occasion to talk with Dr. Cecil, who has had a wide experience with arthritis, and told him that in my experience I had seen few patients with psoriasis who

had arthritic deformities. I asked him whether the patient with arthritis that he saw often suffered from psoriasis, and I was surprised to have him say that in 3 and 5 per cent of his cases of arthritis deformans psoriasis was also present.

DR. MONTGOMERY: I do not know whether we are seeing a different type of psoriasis at the Mayo Clinic from that seen in New York, but I believe that about 20 per cent of our patients have associated arthritis. Five per cent of all our patients with psoriasis have arthritis deformans. An interesting feature is that when we clear up the psoriasis under Dr. Goeckerman's coal tar regimen, the arthritis usually clears up entirely without any further treatment.

DR. CANNON: I have seen many cases of psoriasis associated with some form of arthritis. I have three such cases at the present time, and as the psoriasis has come out, the arthritis has been uncommonly bad, quieting down as the psoriasis has improved. The most severe stages of both diseases seem to occur at the same time, and as one improves the other does also.

DR. LEVIN: I believe that the combination of arthritis and psoriasis is common. I have noticed this especially at the Montefiori Hospital. I think that attempts should be made to differentiate between psoriasis accompanying arthritis and that distinct clinical entity, psoriasis arthropathica. The patient presented showed signs suggestive of psoriasis arthropathica, but may also belong to the group in which psoriasis is accompanied by arthritis. The most important point to remember in psoriasis arthropathica is that the lesions closely resemble those present in keratoderma blenorrhagicum.

DR. GROSS: Regarding psoriasis and arthritis and psoriasis arthropathica, I agree with Dr. Highman; yet the patient presents all the features required for the diagnosis of psoriasis arthropathica — atypical skin manifestations of exudative character resembling keratoderma blenorrhagicum, marked exacerbation of the psoriasis at the time of an acute attack of arthritis and an extensive polyarthritis of the infectious type. The fact that the eruption preceded the involvement of the joints does not speak against the diagnosis.

I am inclined to consider the positive Wassermann reaction as specific, although positive complement-fixation has been reported in psoriasis.

ERYTHEMA MULTIFORME PERSTANS. Presented by DR. WILLIAMS.

A. O., aged 40, a white, American housewife, appeared at the Skin and Cancer Hospital, complaining of erythema on the face, arms, chest and legs, which had been present for more than a year. There had been little change during this period, except that she had noticed that the eruption was much worse just before and during menstruation, and at these times she complained of severe headache. The tonsils had been removed two years before presentation, and most of the teeth three years prior to the onset.

The chemical analysis of the blood showed: sugar, 99 mg. per hundred cubic centimeters; chloride, 435 mg.; urea, 12.5 mg.; uric acid, 1.5; cholesterol, 277.7 mg. The results of the Wassermann test and urinalysis were negative, as was also a blood culture.

PELIOSIS RHEUMATICA. Presented by DR. WILLIAMS.

L. S., a woman, aged 55, born in England, appeared at the Skin and Cancer Hospital, complaining of an eruption on the skin of the legs which did not produce any subjective symptoms. She had considerable pain and stiffness of the joints. The eruption had been present since Feb. 15, 1928, and had not changed to any appreciable extent. She felt much better when at rest. Over the skin of the lower extremities, there were many scattered areas of erythema and petechial hemorrhages. In some areas, there was a brownish pigmentation.

The results of urinalysis and a blood culture were negative. The examination of the blood showed: red blood cells, 3,400,000; white blood cells, 7,400, with a normal differential count. The rhinologist reported a chronic rhinitis and tonsillar hypertrophy. Physical examination did not show any abnormalities.

ERYTHEMA MULTIFORME. Presented by DR. WILLIAMS.

I S., aged 32, a white, American housewife, appeared at the Skin and Cancer Hospital, complaining of a mildly itchy eruption on the arms, legs and face. During the first week of February, the patient had had an attack of sore throat, and two weeks later the eruption appeared on the legs and a week later on the arms and face.

She presented numerous erythematous wheal-like lesions on the arms, legs and face. Many areas had merged and formed diffuse erythematous areas.

The examination of the blood showed: red blood cells, 3,900,000; white blood cells 8,400, with a relatively normal differential count. The tonsils were large and red.

DISCUSSION

DR. WILLIAMS: The three cases were presented not because they were remarkable but because it seemed well to submit to the section three cases of toxic dermatitis in order to bring out the point that this eruption may be due to any one of many causes, and that from the clinical appearance it may be impossible to decide what that cause is. The patient with the purpura shows all there is to be said about it. I could find no history of drug-taking or any focus of infection to account for it. However, Dr. Lapowski has pointed out that in all of these cases, after repeated questioning of the patient has not elicited any information concerning the taking of a drug, the next physician who questions him may obtain this information.

The younger woman, with distinct erythematous lesions isolated over the arms and face, had also another toxic symptom — angioneurotic edema of the right hand — which developed on the day of presentation. She gave a history of severe sore throat just before the onset of the disease, and my belief is that this was the source of the toxin. Again, it was discovered by Dr. Lapowski, after failure on our part, that this woman had taken medicine before the rash, and as salicylates are often given for sore throats, it may be a salicylic acid rash; but in any case the woman presents a good example of a toxic rash due to either the sore throat or the drug. She has promised to bring the drug, and we will give her a dose and see if it aggravates the condition.

The third patient had a curious type of eruption; she had a distinct livido reticularis which developed about the same time as the disease on the forearms — which I doubt is the same. I believe that livido reticularis is a disease of the blood vessels which may become apparent with any intercurrent infection — tuberculosis, syphilis, etc. On the forearms, however, she had distinct erythematous nodules which have persisted for two or three months. In this case we could not find any possible cause.

DR. WOLF: Referring to the second case, I cannot conceive of an eruption of such an extent from the use of a small amount of salicylate.

DR. WALZER: I think that the previous speaker has confused the pharmacologic action of the drug with its action in a hypersensitive person. Buzzing or ringing of the ears following the intake of salicylic acid or its derivatives is a toxic action of the drug and will occur in practically every person provided enough of the drug is taken. This is, therefore, a normal toxic effect of the drug, and usually a certain quantity is demanded before this effect is produced. This action, however, has nothing to do with its effect in a person who has an idiosyncrasy to salicylic acid. In such a person, only a few grains of the drug may set up a terrific eruption. It is therefore not a question of quantity of salicylic acid to produce an eruption of the skin but purely a question of hypersensitiveness.

DR. POLLITZER: How long did the patient with erythema perstans have the rash?

DR. WILLIAMS: More than a year.

DR. POLLITZER: I was wondering whether a more probable diagnosis in this case is not disseminated lupus erythematosus. I rather incline to that view. Erythema perstans lasting for more than a year with such subjective symptoms is rather unusual. The differential diagnosis would not be easily made on purely clinical grounds. Of course, a biopsy would readily make the differentiation.

DR. FOX: All will agree I think with Dr. Walzer's idea that the extent of the eruption does not depend on the amount of the drug which has been taken. I cannot agree with the view of Dr. Wolf. Minute doses of drugs, such as 1 grain (0.065 Gm.) of quinine, in susceptible persons, we all know may produce an extensive rash.

PROFESSOR BLOCH: The case of so-called erythema perstans to me seemed to be an unusual example of lupus erythematosus. Kaposi described a form of lupus erythematosus which he called lupus erythematosus disseminatus. It is a true lupus erythematosus running a severe generalized course. The third case is what we call in Europe erythema toxicum. It is a characteristic disease and is not the effect of any local poison, but is due to internal intoxication.

DR. BECHET: Dr. Pollitzer's point is well taken in view of the appearance of the lesions on the face and those on the arms and legs. They are sharply outlined and in the locations of lupus erythematosus and have a somewhat analogous color. The diagnosis of lupus erythematosus warrants consideration.

DR. WILLIAMS: The patient that Dr. Wolf discussed is the same one that Dr. Pollitzer spoke of — the woman with livido reticularis.

The discussion has brought out a number of interesting points. The diagnosis of erythema perstans is not satisfactory to me. I do not know what to call it. It is a toxic erythema or an exaggerated livido. I do not think it is a drug rash. It is probably due to some focus of infection in the body acting on a vascular system which is abnormal. I shall be glad to make a biopsy and report on the case later. The question of idiosyncrasy is most important, and there is no doubt but that a minimum dose in a susceptible patient will produce an extensive eruption, without constitutional symptoms.

Another point that was raised was the presence of hemorrhagic lesions in the case of erythema multiforme. There are no sharp dividing lines between the classes in that group, which range from urticaria at the one end to purpura at the other; we find patients with one or more, or all, of the symptoms, and the words are convenient for describing the clinical pictures among ourselves, but they do not correspond to any definite clinical entities.

ARSENICAL DERMATITIS (?). Presented by DR. CANNON.

H. S., aged 42, a clerk, born in Roumania, had been shown before the section in January. About twenty arsenic determinations had been made of the blood and urine, and each had been high, one being eight times the normal amount found in the blood. A biopsy did not show any characteristic pathologic changes.

Roentgen-ray examination of the lungs was negative; blood counts and urinalysis were normal. The chlorides had been low; the sugar, bile, urea nitrogen and uric acid were high.

The treatment at the City Hospital consisted of low protein diet, soothing baths, forced fluids and sodium thiosulphate, which was followed by marked improvement. He was discharged from the hospital and returned three days prior to presentation after a two weeks' absence, with a marked generalized dermatitis, the skin showing numerous follicular, bright red, edematous papules varying in size from that of a pinhead to that of a millet seed, which discharged a clear serum. There were large red papules both discrete and confluent over the face.

DISCUSSION

PROFESSOR BLOCH: I have seen the patient and think it impossible to make any diagnosis now, but the most probable one seems to be a premycotic dermatosis. The deep infiltration on the back, almost a tumor, favors that point of view.

DR. OCHS: I had the patient under observation for five months. When I first saw him, he presented almost typical lesions of pityriasis rubra pilaris on the backs of the hands, buttocks and elsewhere; the chest was almost black, and he looked like a colored man; he had areas of pigmentation all over, and arsenical keratoses on the backs of the hands. He had received a number of injections of sodium thiosulphate, and after being under observation for three or four months, he left with the skin fairly clear of the condition, with the exception of pigmentation. He returned later with an acute exacerbation of the disease and was put on the same treatment; when he left, he went to Ann Arbor and Dr. Udo Wile agreed with the diagnosis of pityriasis rubra pilaris, but said there were some indefinite symptoms of an unknown disease. We also found large amounts of arsenic in the urine and blood. My diagnosis at times was pityriasis rubra pilaris and mycosis fungoides.

DR. POLLITZER: To me, the man does not present the characteristic keratotic lesions of arsenic poisoning; moreover, I would like to know from some of the men who have seen him before the source of the arsenic. He may have had injections or arsenic by mouth, but the effects of arsenic other than keratoses do not persist indefinitely, and I understand that he has not had any arsenic for a couple of years. Of course, he might continue to obtain arsenic from some accidental source, such as wall paper. I agree with Professor Bloch that there is considerable probability of its being an early mycosis fungoides. We looked at the patient together and were in harmony on that view, which we present as the probable diagnosis.

DR. OCHS: The patient said that he had been under the care of a physician in Brooklyn, and for four years had been taking continuously solution of potassium arsenite, three times a day, in addition to injections of arsenic of soda.

DR. ROSTENBERG: I can report on this man eight years back, and perhaps I was the first one to give him arsenic. At that time he had what I took to be Duhring's disease. I treated him with sodium arsenate, and he soon developed a severe pigmentation and became almost black. That was at least eight years ago. I cannot conceive how this condition corresponds to prefungoid mycosis fungoides, as Dr. Bloch suggested. I am rather inclined to agree that it is a peculiar arsenical eruption; he has had arsenic from a number of physicians since I treated him.

DR. WISE: The diagnosis of lymphoblastoma was made while the patient was under the care of Dr. Wile at Ann Arbor. When I saw the eruption several years ago, it impressed me as one of generalized erythroderma. The present eruption would not lead me to believe that it is likely to be a precurser of granuloma fungoides.

DR. HIGHMAN: The patient is more or less vague and misleading. He says that I saw him at Mount Sinai Hospital, but I do not remember him and cannot identify him. I did see him, however, two months ago, and I had the impression then that it was a case of leukemia; I have not that impression strongly tonight, but I have the impression from the discussion that during a period of many years the man has had various types of eruption suggesting various conditions — pityriasis rubra pilaris, psoriasis, urticaria, eczema — in which itching was present. I also gather that the man has had arsenic. There seems to be evidence that he has not had any arsenic for three years. I do not see how a man — no matter how much arsenic he stored up in from three to five years — could keep on excreting it after this interval. The number of dermatoses that have been identified suggests that they were probably all premycotic dermatoses, and that the present eruption is another. This substantiates the view expressed by Professor Bloch. If we have three opinions stated — lymphoblastoma by Wile, the impression of leukemia which some of us had two months ago, and a history that suggests various eruptions identifiable with mycosis — we may reasonably suppose that this

man will have mycosis fungoides some day or something so close to it that it would be caviling to doubt it, and it brings into coordination the contradictory beliefs.

DR. TULIPAN: We had him a year ago at the Bellevue Medical Clinic, and most of the men thought it was dermatitis herpetiformis. Dr. Highman examined the biopsy at that time and thought it resembled pemphigus vegetans. We did not give him any arsenic.

PITYRIASIS ROSEA. Presented by DR. SPIEGEL.

A. D., a laborer, aged 38, born in Poland, from Dr. Howard Fox's Clinic, said that the rash had been present for four days; he had not taken any medicine nor applied anything to the skin.

There was a profuse, generalized maculopapular — predominantly papular — eruption involving the face and neck. The papules were intensely red and on the sides of the chest and abdomen were grouped, forming distinctly oval plaques with a clearing center, which lesions followed the lines of cleavage. There were some vesicular lesions on the upper part of the chest. The mucous membranes, palms and soles were free.

DISCUSSION

DR. WALZER: I cannot conceive this case to be one of pityriasis rosea. The grouping of the lesions and the linear formation on the forearms, and also on the penis suggest lichen planus. The abnormal color and the scales may be due to the short duration and treatment.

PROFESSOR BLOCH: It looks like lichen planus. I have never seen a case of pityriasis rosea that looks like this eruption. I agree with Dr. Walzer that it is a clear case of lichen ruber planus. A biopsy would show that.

DR. POLLITZER: As to the diagnosis, I would recall the fact that the eruption appeared four days previous to presentation and in twenty-four hours covered the entire body. Pityriasis rosea usually begins with a solitary patch and after from six to eight days becomes generalized, but always in a regular, orderly manner, spreading over the trunk, showing few lesions on the extremities, and practically none on the face and head. I saw one of the first cases of pityriasis rosea in which vesicles and blebs occurred; a report of the case was published by Dr. Wile in 1912. In that case many of the lesions presented blebs superimposed on the macular scaly lesions of pityriasis rosea. The microscopic vesicles usually present in the lesions of that disease were exaggerated into clinical blebs — probably by the congestion of the skin due to the unusually hot weather prevailing at the time. What, I should like to ask, is there in this case to suggest pityriasis rosea from which it differs so completely in its distribution, development and course as well as in the appearance of the lesions? On the other hand, a close inspection of the patient shows many lesions — especially on the extremities and characteristically on the penis — that have the appearance of lichen planus papules. I agree with the diagnosis made by Dr. Walzer and Professor Bloch — acute universal lichen planus.

DR. WISE: I agree with the diagnosis as presented.

DR. SPIEGEL: Fortunately, we took a biopsy, although the tissue has not yet been studied. When we saw the case yesterday for the first time, the man showed what we considered to be characteristic lesions on the side and front of the abdomen of pityriasis rosea. The lesions were circinate, grouped and followed the lines of cleavage; while the lesions on the face were papular. We did not consider the diagnosis of lichen planus. The lesions were not violaceous red, and with the amount of eruption present one would expect lesions in the mouth and on the penis. There was one small papule on the prepuce. I still think we are dealing with a case of pityriasis rosea. I will report the case again at the next meeting.

TUBERCULOSIS COLLIQUATIVA? Presented by DR. HOPKINS.

M. T., a white housewife, born in the United States, was first seen in the Vanderbilt Clinic on Feb. 28, 1928, on account of an eruption which involved the right side of the face and neck. The eruption began with one small lesion, which appeared over the right clavicle, nine months before the patient came to the clinic. This lesion gradually enlarged and later ulcerated. The next one developed behind the right ear, and since then several similar ones have appeared on the right side of the neck. Several of these ulcerated, discharging a yellow purulent fluid. The patient did not give any history of night sweats, chronic cough, hemoptysis or venereal infection.

On the right side of the face and neck, there were several bright red tumors varying in size from that of a hazelnut to that of a walnut. Some were covered with unbroken skin, while others showed broken down centers, with a discharge of purulent fluid. The nonulcerated lesions were soft and discharged the same purulent fluid on incision. The front of the neck showed smooth bulging tumor-like masses on both sides.

The examination of the discharge for tubercle bacillus and fungi was negative. The Wassermann reaction was negative. The biopsy showed: probably tuberculosis; possibly syphilis.

DISCUSSION

DR. POLLITZER: It impressed me as a typical case of scrofuloderma, and the slide corroborates that diagnosis.

PROFESSOR BLOCH: I agree with Dr. Pollitzer that this is a case of scrofuloderma. In Switzerland, such cases are so common that they are not exhibited at medical society meetings. I suppose the condition is unusual in America.

DR. FOX: I agree with the previous speakers that this is a case of scrofuloderma. I also agree that it might possibly be actinomycosis, and that the failure to demonstrate the ray fungus would not exclude this disease. As the former disease is more common than the latter, I think the chances naturally favor the diagnosis of scrofuloderma. The question could perhaps be more easily settled by animal inoculation for tuberculosis than by a search for actinomyces.

DR. HOPKINS: A point against actinomycosis was the character of the lesions — soft nodules. Although we looked for actinomycoses and did not find it, the negative result would not rule it out positively, for it is often found after several biopsies. Some investigators thought the condition might be syphilis.

XANTHELASMA OF UNUSUAL EXTENT. Presented by DR. SCHEER for DR. BALLIN.

R. G., a woman, aged 66, born in Poland, from the Post-Graduate Skin Clinic, presented lesions of eight years' duration. On both eyelids, there were lesions varying in size from that of a five cent piece to that of a quarter; on the neck and front of the chest were confluent lesions extending around the sides to the back of the neck, which left an area of about 2 inches (5 cm.) free. The front of the neck and the upper part of the chest presented the appearance of a lace collar. According to the patient, the lesions began originally on the neck. The lesions were smooth, soft and yellow.

DISCUSSION

PROFESSOR BLOCH: The lesions on the eyelids surely represent xanthelasma, but the condition on the neck is pseudoxanthoma elasticum. A microscopic examination I believe would indicate this.

DR SCHEER: I regret that a biopsy was not made. The patient has been presented before at a number of meetings. In this artificial light it is impossible to get a good view of the lesions; in daylight they are bright canary yellow, involving the lower lids and extending to the face and neck. I think it is a typical case of xanthelasma. I have not seen a case of pseudoxanthoma elasticum; but I have read about it, and I do not think this is a case of that disease.

ARSENICAL LEUKONYCHIA AND MUSCULAR ATROPHY. Presented by DR. FEIT.

S. S., a man, aged 57, from the Skin and Cancer Hospital, did not give a history of syphilis, but the Wassermann reaction was positive. Two injections of arsphenamine were given, one in the right and one in the left arm; the latter caused an infiltration of the surrounding tissue which produced a terrific swelling of the whole arm and was so painful that the patient could not sleep for fifteen hours. Fifteen days later, all the nails of the left hand became dead white. About six weeks after the injection, a weakness of the whole arm set in; there was also a redness of the whole body for a few days, and a loss of 40 pounds (18 Kg.).

As presented, the nails of the left hand were white, though not so much so as they had been; the muscles, supplied mainly by the median nerve, were atrophic; the fingers showed a sclerodermatous thickening, and paresthesia was felt mainly in the left thumb. The pupils were irregular and reacted fairly well to light. The knee reflexes were not obtainable.

PARAPSORIASIS. Presented by DR. ABRAMOWITZ.

M. C., a woman, aged 33, from the Skin Clinic of the Post-Graduate Hospital, born in Canada, had noticed an eruption appearing on the chest three and a half years prior to presentation. On examination, she presented numerous, irregularly outlined, slightly scaly patches, the size of a coin, on the trunk, especially on the sides, which were coalescent and discrete. They did not itch. Some were ring-like in appearance, with clearing in the center. Light rubbing on the lesions brought out purpuric elements.

Microscopic examination confirmed the clinical diagnosis.

SARCOID. Presented by DR. GROSS.

V. P., a white saleswoman, aged 48, born in the United States, first came to the Vanderbilt Clinic on March 5, 1928, with lesions on the sides of the nose and in front of the left ear. The first one had appeared two years previously as an erythematous, slightly scaly and itchy papule the size of a quarter in front of the left ear. This was treated with salves and lotions, followed by only temporary improvement. A year and a half later, a small, infiltrated papule the size of a pea appeared on the left side of the nose, and a short while later a similar papule appeared on the right side of the nose. The former grew until at the time the case was presented, it was a roughly triangular lesion.

In front of the left ear, there was an oval, rather indefinite, brownish-red, superficial infiltration the size of a quarter, which gradually merged into the normal skin. Below the inner angle of the left eye and extending up on the left side of the bridge of the nose, there was an area 1 inch (2.5 cm.) long and ½ inch (1.27 cm.) wide, which consisted of a diffuse infiltration. The upper border was slightly nodular and bluish red. There was no scaling, but telangiectasia was scattered over the surface of the lesion. On the right ala nasi, there was a similar flat nodule the size of a pea, which was slightly more brownish red.

Roentgen-ray examination showed an enlargement of the mediastinum which was not demonstrable on physical examination. The Wassermann reaction was negative.

The biopsy confirmed the diagnosis of sarcoid.

ACRODERMATITIS CHRONICA ATROPHICANS. Presented by DR. SCHEER for DR. BALLIN.

E. D., a woman, aged 52, born in the United States, from the Post-Graduate Skin Clinic, presented an eruption which had started twelve years before presentation as a reddened fissured area about 1 inch (2.5 cm.) in diameter across the knuckles of the left hand. Each succeeding year the lesion increased in extent until, as presented, it reached from the dorsum of the hand to just below the

elbow; it consisted of atrophic, rather sharply defined, bluish-red patches and showed dilated vessels beneath the thin skin. Just below the bend of the elbow were a few grouped brownish nodules, from one of which a biopsy was taken which confirmed the diagnosis. The lesions were pruritic and scaly, especially in winter.

BRANCHIOGENOUS CYST (?). Presented by DR. FEIT.

J. M., aged 24, a bank teller, American born, had never been seriously ill. One year before presentation, he had noticed a lump on the left side of the neck, level with the larynx, which was painless. It seemed to increase in size and the patient became anxious. On physical examination, the tumor was found to extend from the lateral part of the larynx to the middle of the sternocleido muscle. The mass was rather hard and elastic to the touch and felt like cartilage. A pharyngeal orifice or an enclosed cleft or thymic duct was not found.

FAVUS OF SCALP IN ADULT TREATED WITH THALLIUM ACETATE. Presented by DR. ABRAMOWITZ.

P. G., an Italian woman, aged 41, from the New York Post-Graduate Skin Clinic, had numerous scarred areas on the scalp with margins of yellowish scales and crusts. Culture was positive for favus, as was also examination with Wood filter. The duration of the condition of the scalp was thirteen years. She weighed 45 Kg. (100 pounds) and was given 4 mg. of thallium acetate per kilogram of body weight. Epilation began on the thirteenth day and was accompanied by dyspnea, general body weakness and pains in the legs, which lasted almost two weeks. The hair was still falling out, but the epilation was not yet complete.

LEPROSY. Presented by DR. FEIT.

B. S., a man, aged 22, from Dr. Throne's service in the Skin and Cancer Hospital, who was born in Venezuela, and who had been in this country for seven months, gave a negative past history. The eruption had started on the right temple three months before presentation, and had gradually involved the face. He complained of pain in the arms and feet which kept him awake at night. There were bluish-brown patches varying in size and shape from that of a fingernail to that of a palm and larger; these were slightly edematous. The sensation for touch was either decreased or absent; some of the patches were depigmented. They were distributed all over the integument. The ulnar nerves were thickened; the interossei as well as the extensor muscles of the right foot were atrophic, with paresis of the radial and peroneus nerves, so that extension of the hands and feet was greatly diminished. Cultures on nasal smears were negative. The patient was receiving injections of antimony arsphenamine twice a week.

CLEVELAND DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Annual Meeting, April 5, 1928

CHARLES G. LAROCCO, M.D., *Presiding*

A CASE FOR DIAGNOSIS. Presented by DR. COLE and DR. DRIVER.

R. W., a boy, aged 7, had had a bullous eruption since July 1, 1926. The eruption was of generalized distribution, and the mucosae were involved. The bullae tended to rupture, leaving a hemorrhagic, excoriated base, with signs of secondary infection. They had appeared in successive outbreaks, especially on the

hands, face and feet. There were a few small bullae at the time of presentation. All laboratory and diagnostic tests were essentially negative.

DISCUSSION

DR. ORMSBY, Chicago: In this case, pemphigus, dermatitis herpetiformis and erythema multiforme must be considered as possibilities. Pemphigus is the most likely diagnosis, and dermatitis herpetiformis stands second, but erythema multiforme cannot be ruled out.

DR. COLE: Last year Dr. Gans, of Heidelberg, called it dermatitis herpetiformis.

GRANULOMA INGUINALE. Presented by DR. COLE and DR. DRIVER.

C. W., a negro, aged 60, had been shot in the penis with a revolver twenty years previously, and fifteen years before presentation he had had a penile sore which had healed readily under local medication. About five months before the time of presentation, a small lump had appeared in the left groin. It was painful and enlarged, and finally ulcerated with cauliflower-like granulations. Following circumcision, one third of the surface of the glans penis was found to be covered with a pedunculated, fungating tumor. The Wassermann reaction was strongly positive. Biopsy examinations of both lesions had been made.

THREE CASES OF TINEA CAPITIS WITH EPILATION BY THALLIUM ACETATE. Presented by DR. COLE and DR. DRIVER.

E. B., aged 8, E. M., a negro, aged 9, and H. M., a negro, aged 7, all boys, had presented typical cases of tinea capitis, proved by cultures. Thallium acetate was administered orally in a dosage of 8 mg. per kilogram of body weight on March 5. The white boy's hair started to drop out on the twelfth day, and it was completely removed with the aid of an adhesive cap on the sixteenth day. In the two negroes, the hair did not begin to loosen until the fourteenth day, and epilation was complete on the eighteenth day, adhesive caps having been used. There was no loss of the eyebrows or eyelashes, and there were not any apparent toxic manifestations.

DERMATITIS EXFOLIATIVA. Presented by DR. COLE and DR. DRIVER.

L. B., a man, aged 62, an interior decorator, had not worked since the onset of the dermatitis. There was a generalized exfoliation of three years' duration. Roentgenograms showed bilateral, chronic, apical, pulmonary tuberculosis. The blood picture was normal.

DISCUSSION

DR. WERTHEIMER, Pittsburgh: I had a similar case in which postmortem observations suggested the spinal cord changes seen in pellagra.

DR. BARNEY: I would suggest that a lymph node be examined in search of hyperplasia of the lymphadenotic type.

SARCOMA AND VON RECKLINGHAUSEN'S DISEASE. Presented by DR. COLE and DR. DRIVER.

C. B., a man, aged 20, had never been normal mentally or physically since birth. He had been unable to walk or talk until he was 4 years of age, and after eleven years in school he had reached only the fourth grade. At the age of 10, a lump the size of an egg had been noticed in the deeper tissues of the lateral part of the right thigh, and at about the same time many small nodules had appeared all over the surface of the body. These nodules were soft and pigmented, and a few were painful. His health had continued to be fairly good until about eighteen months before the time of the presentation, at which time it was noticed that the mass in the right thigh was growing. In August, 1927, surgical removal was attempted at Lakeside Hospital, but failed; the pathologist then made a diagnosis of sarcoma.

Since that time the tumor enlarged steadily. Roentgenograms of the skull and chest did not show any abnormality; an area of destruction was found in the head of the right femur and in the region of the acetabulum. The patient's mother and one brother had similar subcutaneous tumors, and one brother had died about two months previously, presumably of gastric cancer.

THREE CASES PRESENTING HYPERTROPHIC BUBOES (LYMPHOGRANULOMATOSIS INGUINALE). Presented by DR. COLE and DR. DRIVER.

Three men showed inflammatory changes in the inguinal lymph nodes following a relatively insignificant and apparently benign lesion of the penis. The penile lesion is often overlooked, even by the patient, and tends to heal readily under local medication of any kind. Its incubation period is as short as that of chancroid, and it generally appears as a vesicle, which rarely exceeds 0.5 cm. in diameter, and disappears rapidly. The complicating buboes appear early, are unilateral or bilateral, and enlarge steadily. They may attain the size of a man's fist, and are relatively painless; when mature, they present multiple localized areas of fluctuation. The course of the disease is prolonged to months. In these three cases the Wassermann reactions were repeatedly negative, and therapy, including filiform drainage, did not produce any striking improvement. They were presented as typical cases of lymphogranulomatosis inguinale of Nicolas and Favre. Cultures had been entirely negative.

PRURIGO NODULARIS WITH IMPROVEMENT AFTER THYROIDECTOMY. Presented by DR. COLE and DR. DRIVER.

M. W., a woman, who had always been in good health, had first noticed uncontrollable itching, especially on the lower extremities, in the summer of 1926. She had attributed it to the bites of black flies. The itching had persisted and many discrete pale nodules had appeared. Most of the lesions were on the lower extremities, but a few were present on the arms. Local medication and roentgen-ray therapy had been used, with only moderate effect. Pronounced improvement had followed thyroidectomy.

DISCUSSION

DR. FISHER: I agree with the diagnosis of prurigo nodularis.

DR. WOLLENBERG, Detroit: The patient said that wheals preceded the nodular lesions, a point in favor of prurigo nodularis.

DR. NETHERTON: I saw the patient before presentation, and feel that there has been a marked change since thyroidectomy. Before the operation, the lesions resembled those of hypertrophic lichen planus.

DR. COLE: Three years ago, Dr. Driver and I saw the patient, at which time he had a classic case of prurigo nodularis. Now the lesions have practically disappeared, and I attribute the improvement to the thyroidectomy.

DR. OSBORNE, Buffalo: On the lower part of the right leg there was a lesion quite typical of lichen planus. In cases of prurigo nodularis, I have obtained good results from intravenous injection of sodium bromide.

DR. ORMSBY: I saw the third case of prurigo nodularis reported in this country (Dr. Hyde's case). In that case and in two or three others I have seen, lesions developed which did not disappear. The lesions are usually on the extremities, and the itching is severe.

CONGENITAL ICHTHYOSIFORM ERYTHRODERMA. Presented by DR. COLE and DR. DRIVER.

R. S., a girl, aged 16, whose general health had always been good, had first noticed an eruption on the feet six months before examination. The hands and other parts of the body were soon involved, with little or no itching. The lesions were vesicular and seemed to follow trauma. About the hands, feet and knees

the skin was dry and erythematous, and there were a number of small deep-seated bullae in various stages. There was definite keratosis pilaris of the arms and lower extremities. A marked tache cerebrale was present.

DISCUSSION

DR. WOLLENBERG, Detroit: This patient showed a typical Nikolsky's sign.

DR. ORMSBY: Apparently this is a case of the acquired type of ichthyosiform erythroderma.

DR. COLE: The lesions follow trauma, and there is a mild ichthyosis: keratosis pilaris and hyperkeratosis of the palms and soles. We classify it according to Goeckerman's report on bullous ichthyosiform erythroderma.

VERRUCOUS PIGMENTED NEVUS. Presented by DR. NORRIS and DR. CAVANAUGH.

M. J., a girl, aged 9, presented a palm-sized, dark brown, warty patch extending along the left Poupart's ligament. It was of two years' duration, and had been accompanied by some swelling, which had subsided after exposures to the roentgen rays.

TUBERCULOSIS ORIFICIALIS WITH EPITHELIOMA. Presented by DR. STEINBERG.

F. M., a man, aged 41, had had a sore throat at the age of 14, following which the palate, nose, with adjacent parts of the cheeks, and part of the jaws were destroyed by an ulcerating process. At that time an artificial nose was grafted on. The ulcerative process had continued, and at the time of presentation the tongue was involved, a section showing epitheliomatous change. Treatment with radium, roentgen ray and the electrocautery had failed. Smears had been negative for tubercle bacilli.

ERYTHEMA INDURATUM. Presented by DR. LITTMAN.

A. J., a woman, aged 24, had had erythematous nodules, occasionally ulcerating, on the legs for the previous seven years. As presented, there were several inflammatory nodules on the left calf, and numerous depressed atrophic scars on both legs, together with an indolent left cervical adenitis. The physical observations were otherwise negative, but roentgenograms showed calcification of the hila of both lungs. The patient's mother and brother had died of pulmonary tuberculosis.

A CASE FOR DIAGNOSIS. Presented by DR. FISHER.

L. H., a man, aged 32, a fireman, presented an eruption on the arms and legs, of four years' duration, which consisted of scattered coin-sized plaques of small nodules, at first erythematous, later yellowish, and developing telangiectases. The borders of the patches were somewhat elevated. The patient was under treatment for diabetes, and had 250 mg. of sugar per hundred cubic centimeters of blood.

DISCUSSION

DR. WILE, Ann Arbor: In this unusual case, the saffron-like color of the plaques and their hardness would suggest a peculiar type of xanthoma tuberosum multiplex, or some form of tuberculoma.

DR. COLE: Dr. Driver and I saw the case a month ago and the question of xanthoma was considered. The lesions do not ulcerate, and are followed by atrophy; it may be a sarcoid.

EPIDERMOLYSIS BULLOSA HEREDITARIA. Presented by DR. COLE and DR. DRIVER.

N. P., aged 11 years 6 months, had developed bullous lesions, often hemorrhagic, at points of trauma, since the age of 1 year and 6 months. The hands, elbows,

knees and ears were especially involved, with scarring, and milia were present here and over the face. The nails were atrophic. No other member of the family had a cutaneous disorder.

EPIDERMOLYSIS BULLOSA HEREDITARIA. Presented by DR. COLE and DR. DRIVER.

R. Y., a boy, aged 2, had had the condition since birth, with apparently noninflammatory bullae developing on the hands and feet after slight trauma. No relatives had similar trouble.

A CASE FOR DIAGNOSIS. Presented by DR. COLE and DR. DRIVER.

J. G., aged 39, presented a generalized brownish pigmentation, most marked on the trunk and less prominent on the face and the extremities. The hyperpigmentation was not uniform, as there were numerous small, round, nonpigmented areas interspersed, from 1 to 3 mm. in diameter. The condition had begun to develop in the spring of 1925. The patient had been hospitalized for alcoholic hepatic cirrhosis and toxic neuritis. The Wassermann reaction of the blood was negative. There was a trace of albumin in the urine. The hemoglobin percentage was 80 and the erythrocyte count was 3,872,000, while the leukocytes numbered 3,200.

DISCUSSION

DR. WILE, Ann Arbor: The mottled pigmentation and the palmar and plantar keratoses seem to justify a diagnosis of chronic arsenical poisoning. May not the hepatic cirrhosis be a part of the arsenical intoxication?

DR. HOLLANDER, Pittsburgh: This case presents an interesting clinical picture. The loss of weight and the muscular atrophy would suggest possible injury to the suprarenal glands.

DR. CUMMER: The blood pressure of 86 systolic and 54 diastolic may have some bearing on the diagnosis.

DR. RAUSCHKOLB: The tongue is red, raw and beefy. There are peripheral neuritis and signs suggesting pernicious anemia. There is no history of arsenical medication. The patient took medicine only after the hyperpigmentation appeared.

A CASE FOR DIAGNOSIS. Presented by DR. COLE and DR. DRIVER.

M. G. H., a woman, aged 48, said that twelve weeks before examination she had first noticed a reddish eruption about the mouth, which spread rapidly to the nose and forehead. As presented, the eruption involved the chin also. It was sharply outlined and deeply erythematous, it did not blanch on pressure or show any apple jelly nodules. There was diffuse infiltration and some nodules, and scaling over the lower part of the face. There was not any tendency toward ulceration. The physical and serologic examinations were negative. The patient had had a morning cough for the previous year, but no loss of weight, and roentgenologic studies of the chest were negative. No tubercle bacilli were found in the sections. There was an extensive small cell infiltration, especially around the vessels of the corium, together with epithelioid cells and numerous giant cells.

DISCUSSION

DR. WILE: This case is hard to diagnose. The extraordinary yellowish color, and the nodular character of a few lesions would suggest an unusual cutaneous tuberculosis of the noncaseating type.

DR. CRAWFORD, Pittsburgh: The infiltration seemed sarcoidal.

DR. OTTO H. FOERSTER, Milwaukee: I agree with the diagnosis of sarcoid.

DR. COLE: The onset was rapid and the appearance peculiar. Diagnoses of lupus vulgaris and sarcoid were considered. Histologically it was sarcoid, and it has improved after two injections of neoarsphenamine.

DR. OSBORNE: The bluish and whitish areas on the oral mucosa suggest lupus erythematosus.

PEMPHIGUS RESEMBLING LUPUS ERYTHEMATOSUS. Presented by DR. FISHER.

A man, aged 29, a mechanic, had had an eruption for fifteen months, with erythematous and vesicular lesions on the face, trunk and arms. The buccal mucosa was also involved. Severely infected teeth were extracted, and for the two months prior to the time of presentation iron cacodylate was given intravenously and coagulin subcutaneously, apparently with great benefit.

DISCUSSION

DR. BARNEY: I saw the patient at the onset of this condition. He then presented bullae on the face and definite ruptured bullae on the mucosae, and I made a tentative diagnosis of pemphigus. At the time of presentation I found a small lesion on the buccal mucosa. I would classify the case midway between pemphigus and dermatitis herpetiformis.

DR. OTTO H. FOERSTER: Dr. Ormsby has exhibited a similar case at the Chicago Dermatological Society, and a group of these were later described by Dr. Senear in the ARCHIVES as atypical pemphigus resembling lupus erythematosus.

DR. ORMSBY: It is atypical pemphigus, resembling lupus erythematosus. Lesions like those of seborrheic dermatitis follow bullae. The histologic picture is that of pemphigus.

LYMPHANGIOMA. Presented by DR. COLE and DR. DRIVER.

K. Z., an infant, aged 7 months, had been born with the right leg larger than the left, and the condition had persisted. The leg was of elephantiasic appearance, with horizontal constrictions at definite levels. The right buttock and the outer surface of the thigh to its lower third showed a diffuse flat, faint, vascular nevus. Scattered here and there over the surface were numerous deep-seated vesicular lesions. Filtered roentgen-ray treatment had been used, with marked improvement.

ALOPECIA AREATA; ATROPHIA UNGUIUM; GLANDULAR DYSTROPHY. Presented by DR. BARNEY.

H. A., a boy, aged 15, had had alopecia areata for three years. In the four months prior to presentation, he had gained 60 pounds (27.2 Kg.), and about two months before presentation nail changes had been noted. There were large areas of alopecia on the scalp, and the finger-nails showed vertical cracking and were abnormally friable. Studies of the basal metabolism, blood sugar and sella turcica showed no abnormality.

LICHEN SCROFULOSORUM. Presented by DR. BARNEY.

R. C., a negro boy, aged 14, had noticed the eruption for six weeks, first on the face and later on the scalp, trunk and genitalia, with an associated pruritus. The lesions were numerous pinhead-sized subacutely inflammatory papules, sometimes arranged in pea-sized to small coin-sized groups. In the right axilla there was a lemon-sized lymph node, and roentgen-ray studies of the chest revealed enlarged mediastinal nodes. In 1924, a lymph node removed from the left axilla had been diagnosed as tuberculous. The child was undernourished.

XANTHOMA TUBEROSUM MULTIPLEX. Presented by DR. COLE and DR. DRIVER.

R. J., a woman, aged 27, presented multiple yellowish nodules on the knees, elbows, fingers and upper eyelids. Similar lesions on the heels had been excised

two months previously. The blood contained 360 mg. of cholesterol per hundred cubic centimeters, and 1.7 mg. of uric acid.

DISCUSSION

DR. ORMSBY: Years ago, Dr. Pollitzer described xanthelasma as a degenerative process of the eyelid muscles. Here is an eyelid xanthoma with xanthoma elsewhere, and apparently of the same type. This is an example of the tuberous variety occurring on the eyelids. It does not disprove Dr. Pollitzer's point in other cases.

DR. WILE: Much of the confusion in the early literature was probably due to such cases as this.

RADIODERMATITIS WITH MALIGNANT DEGENERATION. Presented by DR. CUMMER.

A white man, aged 28, had been severely burned about the face, hands and elbows, in 1915, and from 1917 to 1919 roentgen-ray treatments were used to reduce thickened scars in these areas. In 1927, a "spot" was seen on the dorsum of the left hand. The face and the dorsal surfaces of the hands showed atrophic scarring and telangiectasia, and on the right hand there was an elevated, dry, verrucous patch, 3 cm. in diameter, with an indurated rolling border. In the surrounding skin there were a number of smaller crusted areas.

DISCUSSION

DR. WILE: These growths on the hand are singularly malignant, and one can never be sure of a cure. Therefore one should do the most radical operation consistent with saving the hand.

A CASE FOR DIAGNOSIS. Presented by DR. NORRIS and DR. CAVANAUGH.

H., a woman, a housewife, aged 34, colored, with apparently irrelevant family history, had first noticed a "hard spot" on the leg three years before examination. Two injections of neoarsphenamine were administered, and two weeks later a generalized eruption began to appear. Only the palms and soles were not involved. The lesions were multiform. There were clusters of discrete and coalescing large pinhead-sized to lentil-sized papules on the cubital and nuchal and dorsally about the posterior axillary areas. On the back there were large discrete and coalescing patches, irregularly oval, from 1 to 15 cm. in diameter. There was some tendency for the long axes of the patches to follow the lines of cleavage of the skin on the sides of the trunk and in the pectoral and supraclavicular areas. The patches were slightly elevated and reddish-brown, with a somewhat glazed appearance. Some were lichenified. At the hair-line on the right side of the forehead there was a medium coin-sized atrophic spot. The scalp was not markedly involved, and no lesions were found on the mucous surfaces. Infiltration was not deep, except in the newly appearing lesions. There was little apparent tendency to spontaneous involution, but in some places, as on the lower legs, there were lesions apparently undergoing involution, leaving macular stains. Although in fairly good general health, the patient had lost some weight, and roentgenograms of the chest showed signs of tuberculosis. The Wassermann reaction was strongly positive. (The subsequent biopsy observation suggested erythema elevatum dintinum, presenting no evidence of lichen planus, psoriasis or tuberculosis.)

DISCUSSION

DR. WILE: This might be considered as some disseminated form of tuberculosis. Perhaps colored people may present annular tuberculous lesions as well as annular syphilids.

DR. ORMSBY: On the forearms were lesions like those of moniliform lichen planus, and lesions on the trunk resembled those of lichen planus. Elsewhere, and on the scalp, were lesions with atrophy, like lupus erythematosus. The eruption is probably neither lichen planus nor lupus erythematosus, but is probably an unusual type of tuberculosis, as the histologic observations indicated.

DR. CRAWFORD: I have had two similar cases in negroes. The histology was that of tuberculosis.

A CASE FOR DIAGNOSIS. Presented by DR. COLE and DR. DRIVER.

S. G., a man, aged 20, presented lesions which had first appeared in early childhood, and consisted of confluent atrophic patches on the sides and front of the neck, made up of white spots surrounded by pigmented rings. There were atrophic lesions of the tongue and nails.

DISCUSSION

DR. ORMSBY: This case presents a group of symptoms that have, I believe, not been described heretofore, and appears to be a new clinical entity. A year ago Dr. Engman brought such a case to Chicago, three months after Dr. Cole had first showed this case. It should be recorded in the "Ikonographia." While the eruption looks diffuse, it is made up of small pigmented rings with central white areas which may be atrophic. All of these cases have shown changes in the tongue. Whether the condition is nevoid remains to be worked out.

SYRINGOCYSTADENOMA (?). Presented by DR. NORRIS and DR. CAVANAUGH.

G. R., a woman, a housewife, aged 40, had first noticed an eruption on the shoulder four months before presentation. There had been slight pruritus at times. On the left shoulder were numerous pale papules.

DISCUSSION

DR. ORMSBY: The brownish-yellow lesions over the shoulders and chest are suggestive of syringocystadenoma, which is like multiple benign cystic epithelioma, but which occurs on the trunk. The lesions resembled those of leiomyoma, but were softer and not painful. There was also some resemblance to xanthoma. Syringocystadenoma usually is somewhat restricted in its distribution, though I have seen it in extensive development. Both syringocystadenoma and multiple benign cystic epithelioma are benign epithelial new growths.

PERIADENITIS MUCOSAE NECROTICA RECURRENS. Presented by DR. COLE and DR. DRIVER.

J. S., a young man, had had recurrent small ulcers in the mouth for several years. His general health was good.

PERIADENITIS MUCOSAE NECROTICA RECURRENS. Presented by DR. COLE and DR. DRIVER.

N. B., a woman, aged 42, had had sores in her mouth for thirty years. They had not been influenced by treatment. On the dorsum of the tongue were several ulcers, up to 1 cm. in diameter, with a raised border and a yellow necrotic base. There were papules and nodules along the vermilion border of the lower lip. There was no cervical adenopathy, and a general physical examination did not reveal any other abnormality. Three of the patient's six children presented the same condition.

DISCUSSION

DR. WILE: No other form of lesion of the mucous membrane gives us so much difficulty as this form of localized aphthae. It occurs in people who have

hyperacid mouths. Some persons go through years of real torture with these herpetiform lesions. In my experience, they have often been mistaken for epitheliomas and for syphilids. Both cases presented were examples of the same condition, recurrent and of unknown etiology. I have exhausted all methods of therapeutic attack. They persist after local foci of infection are removed. I do not know what they are, but apparently they are not infectious.

DR. ORMSBY: We all know the problem of caring for these cases. I have given from 16 to 20 injections of arsphenamine without result. One of my patients has had the disorder for eighteen years. Ulcers may persist for eight months. The lesion is a small slightly elevated nodule, reddish, with a necrotic top. At first a false membrane covers them. Then it clears. There may be a resemblance to tuberculous ulcers. I have given calcium chloride intravenously in these cases, without benefit.

EPITHELIOMA (PAGET'S DISEASE). Presented by DR. BARNEY.

A woman, aged 55, had first noticed a red spot on the left thigh ten years before examination. During the two months before the time of presentation, the lesion had become much larger and redder, with crust formation at times. There was no tendency to easy bleeding. On the middle of the external surface of the thigh was a medium coin-sized, sharply outlined, somewhat elevated lesion, with a translucent border. On its surface were several small and large pinhead-sized translucent nodules. There was some infiltration, but very slight tenderness.

DISCUSSION

DR. MONTGOMERY, Rochester, Minn.: The microscopic picture is that of a basal squamous cell epithelioma, showing the transition between the basal cell and squamous cell epithelioma. The microscopic picture does not show evidence of Bowen or Paget cells. It should be classified as a case of superficial epitheliomatosis. These cases should be definitely distinguished from the rare dermatologic condition known as Bowen's precancerous dermatosis.

DR. COLE: According to the literature, the cure is simple, but I have found it very difficult in epitheliomas of this type. Radiodermatitis usually occurs before the cure is completed. Endothermy is effective sometimes, and occasionally surgical excision.

DR. OSBORNE: I have had many such cases in psoriatic patients who have taken arsenic over long periods. I would recommend curettage, followed by the application of trichloracetic acid.

DR. WILE: Occasionally, these epitheliomas metastasize. In Chicago, I saw a case of multiple superficial epitheliomatosis develop into the transitional type of epithelioma and then into the squamous cell type, followed by metastases and death. The term "Pagetoid" describes a type presenting an eczematoid appearance, and should therefore be retained as descriptive.

DR. ORMSBY: Bowen's precancerous dermatosis has been the subject of much discussion and confusion. His original case clinically resembled a syphiloderm, but histologically was an epithelial new growth believed then to be merely a dyskeratosis. Later, true epithelioma developed in some of the cases. It is now believed they are carcinomatous from the beginning. Many cases have been recorded since under this title that belong elsewhere. In addition to the Bowen type, there are two other forms of superficial epitheliomatosis. The first is a moist, crusted form resembling Paget's disease which not infrequently develops into a prickle cell epithelioma and may metastasize; the second is a dry erythematous form described by Little which is a basal cell epithelioma. Both forms may have a raised threadlike margin. This feature is not always present in the moist, crusted form.

ELEPHANTIASIS NOSTRAS. Presented by DR. COLE and DR. DRIVER.

A. S., a man, aged 66, had presented an ulcer of the lower third of the right leg, of thirty years' duration, in 1921. It had healed in three months under local treatment. In January, 1928, he had appeared again with a large ulcer on the lower third of the left leg. Although Wassermann reactions had never been positive, the ulcer had healed almost completely after seven injections of arsphenamine, totalling 2.7 Gm. The remaining portion of the lesion was an ulcer about 5 cm. wide and 8 cm. long, surrounded by dense scar tissue. The left leg was much larger than the right, and the skin was hyperpigmented. The results of the general physical examination and the test for syphilis had been negative.

BUCCAL LICHEN PLANUS. Presented by DR. BARNEY.

J., a woman, aged 60, had had a "sore mouth" for five months, with slight burning sensations. On the mucosa of each cheek were small, coin-sized, violaceous patches. The borders of the patches were distinct, slightly raised and grayish white, and white lines radiated from them. There were no cutaneous lesions.

A CASE FOR DIAGNOSIS. Presented by DR. NETHERTON.

F. T., a married man, aged 54, had first noticed the appearance of smooth, ring-shaped red spots on the legs, six years previously, two months after eighteen teeth had been extracted. Itching had been severe, and slight trauma would remove the superficial skin. The spots had disappeared after the patient had taken "S. S. S." In 1925, the eruption reappeared following pneumonia, and "S. S. S." was of no benefit, or was a solution of potassium arsenite. The eruption persisted and involved the legs and buttocks. There were numerous round, oval and irregular lesions of various sizes, with well defined, raised, smooth or slightly scaly, pink to violaceous margins, and clearing centers, some of which seemed slightly atrophic. The lesions enlarged peripherally, and involution was followed by pigmentation. Some of the plaques were verrucous, and there were annular, segmented and crescentic lesions. Histologically, there was a papillary and subpillary infiltration of small round cells of uniform type, and the basal cell layer of the epidermis was destroyed in places. There was only slight perivascular infiltration. The epidermis was thin and edematous.

DISCUSSION

DR. ORMSBY: At first glance a diagnosis of tuberculosis verrucosa cutis was suggested, but the condition is probably mycosis fungoides.

DR. JAMIESON, Detroit: I saw this case two years ago, and still consider it mycosis fungoides.

DR. MONTGOMERY: The microscopic picture strongly suggests mycosis fungoides. I would make such a diagnosis in this case on the basis of the clinical plus the microscopic observations.

A CASE FOR DIAGNOSIS. Presented by DR. NETHERTON.

S. C., a woman, aged 51, had noticed painful urination and sore, bleeding gums for two years, as well as a skin eruption which had been treated with roentgen rays. The cutaneous lesions caused slight subjective symptoms. Beneath the breasts were brownish red and violaceous, flat, polygonal papules and some pigmentation, and in the buccal mucosa there was a whitish reticulation, apparently lichen planus. There was leukoplakia on the dorsum of the tongue, and the gums and buccal mucosa were bright red and slightly edematous. The vaginal mucosa was bright red, with a marked purulent discharge, and on the labia there was a grayish blue hyperkeratosis. Vaginal smears showed Vincent's organism; gingival smears were negative.

DISCUSSION

DR. OTTO H. FOERSTER: On the buccal mucosa are whitish lines, slightly raised, in a network with nodes at the intersections, considered to be characteristic of lichen planus. The lesions under the folds of the breasts do not coincide with this diagnosis. The gingivae and the vulvar mucosa are cerise red. The nearest I can come to a diagnosis is lichen planus.

DR. NETHERTON: I feel that the condition found in the buccal mucosa is lichen planus. The case was presented on account of the condition of the gums and vagina. Vincent's organisms were found only in the latter.

DR. RAUSCHKOLB: A diagnosis of pellagra must be considered.

DR. ORMSBY: There are lesions of lichen planus on the buccal mucosa, but I cannot account for the condition of the gums and vagina. Lichen planus, however, can produce superficial ulcers or excoriations on mucous surfaces.

PITCH DERMATITIS. Presented by DR. COLE and DR. DRIVER.

C. K., a man, aged 61, in good general health, had handled German pitch in a carbon factory for a few years, beginning in 1898. About six years after he had begun the work, he had noticed wartlike spots on the forearms and face, which had gradually multiplied, so that he had finally changed his work. Since that time there had been some improvement in some areas, and aggravation in others. For one year preceding presentation, there had been an ulcer on one finger, with a tendency to disappear and recur. On the face, neck and forearms, especially below the elbows, the skin was dry, atrophic and of the senile type, with a telangiectases any many papules and nodules, some of which were crusted. Many of the papular and nodular areas were on an indurated base. The skin of the hands was somewhat contracted, and on the third finger of one hand there was a tender, reddish, exuding ulcer with an indurated border.

DISCUSSION

DR. BARNEY: This condition bears a strong resemblance to xeroderma pigmentosum, with its associated pigmentation, keratoses, telangiectasia and lesions suggesting early epitheliomatous changes.

DR. COLE: I have seen many pitch workers. They seemed more sensitive to German pitch than to the American pitch now used. It seems to sensitize the skin to light. I saw this patient eight or ten years after he had stopped the work, and he was still developing epitheliomas. It is the most pronounced case I have encountered in my work.

A CASE FOR DIAGNOSIS. Presented by DR. FISHER.

A woman, aged 68, had had a lesion over the occiput for one year, which was said to have started with an injury from a hairpin. The spot had gradually enlarged, with crusting, and in May, 1927, she had received two roentgen-ray treatments from an osteopath; in January, 1928, two more treatments had been given, and the hair had begun to fall out. Th occipital area presented a quarter-sized ivory colored patch, surrounded by an inflamed, edematous area of alopecia.

DISCUSSION

DR. PARKHURST: With the central atrophy surrounded by erythema, edema and patulous follicular orifices, the picture is not unlike lupus erythematosus.

DR. WILE: The central area looked like morphea. The effect of the roentgen rays may have confused the clinical appearance of the case. I understand that the patient had a thyroidectomy. Did this operation precede or follow the appearance of the lesion?

DR. FISHER: The lesion was present before the operation.

DR. CREGOR, Indianapolis: The lesion appears to be morphea, the condition of the surrounding tissues being due to the roentgen-ray treatments.

CYANOSIS DUE TO POLYCYTHEMIA VERA. Presented by DR. LEVINE.

G. R., a man, aged 48, had first noticed a purplish color of the hands, feet and face twenty years previously, but had not experienced marked discomfort until a short time before presentation, when there had been dyspnea and slight edema of the right ankle. There was an aortic aneurysm and the Wassermann reaction was strongly positive; syphilitic infection had occurred thirty years previously. The erythrocyte count was 7,000,000, and the hemoglobin precentage was 115. The blood pressure was 210 systolic and 150 diastolic. The spleen was not palpable.

LUPUS VULGARIS. Presented by DR. COLE and DR. DRIVER.

J. O., a boy, aged 8, presented lesions of the left cheek of fifteen months' duration. Anterior to the ear was a dollar-sized confluent patch of pitted lesions, each pinhead-sized and brownish. At the angle of the jaw was a keloidal scar, and immediately anterior to the left ear lobe was a dime-sized depressed verrucous scar, fixed to the subcutaneous tissues. The tuberculin reaction (1 : 100,000) was positive, the reaction on the forearm being still visible after a month. There was no roentgenologic evidence of pulmonary infection. The Wassermann reaction was negative, and the past history and the family history were negative.

DISCUSSION

DR. HARRY R. FOERSTER: I agree with the diagnosis of lupus vulgaris.

A CASE FOR DIAGNOSIS. Presented by DR. CARSON.

M. F., a man, aged 20, presented a generalized intensely pruritic eruption, which had begun on the head and neck five years previously and had extended within a few months, by exacerbations, involving the trunk and extremities. The legs, arms and nucha were the sites of predilection. The entire skin was dry, rough and thickened, and the eruption was decidedly follicular, with a verrucous tendency on the arms and legs. There was no erythema, except where lesions had been infected. There were many superficial white scars from excoriations. Over the tenth rib, posteriorly, was a nevus anemicus, 4 cm. in diameter. The results of the general physical examination and urinalysis were negative, as was the condition of the blood, except an eosinophilia of 9.6 per cent. The biopsy report, by Dr. Satenstein of New York, described the epidermis as hyperkeratotic and the tissue reaction as exceedingly mild and limited to the upper cutis, pointing toward a diagnosis of some form of ichthyosis. Local applications and seven generalized roentgen-ray treatments had not been of any benefit.

DISCUSSION

DR. WILE: The condition impresses me as a sensitization dermatitis; the lesions on the legs could be a part of that picture. Those on the neck and arms were lichenoid.

DR. PARKHURST: The thickened skin, pruritus and many palpable lymph nodes point to the possibility of this being a leukamid accompanying aleukemic leukemia.

CYST, THYROGLOSSAL (?). Presented by DR. STEINBERG.

A. F., an Italian woman, aged 37, had had a small submaxillary tumor in the median line since she was 3 weeks old. It had discharged repeatedly, and had gradually enlarged. The tumor was as large as a small hen's egg and was not tender. Under the tongue there was a soft spongy mass with enlarged superficial veins.

SCLEREMA NEONATORUM. Presented by DR. COLE and DR. DRIVER.

G. W. S., a foundling boy, aged 3½ months; at the age of 6 weeks some indurated areas had been found on the cheeks, forearms and lower legs. This process had remained stationary for a month, and had then improved steadily, with a general gain in weight. At no time had there been fever or subnormal temperature. Roentgenograms had shown heavy calcium deposits along the inside of the tissues of the calves and thighs and in the cheeks; all of these had steadily diminished as the child's general condition had improved. Biopsy examination revealed a cellular infiltration of the tissues, especially in the subcutis, where there was an enormous amount of giant cell formation and calcium deposit. The examination of the blood showed: sugar, 96; nonprotein nitrogen, 32; cholesterol, 110.3; creatinins, 1.08; Wassermann reaction, negative; protein, 6.12; refractive index, 1.34650.

DISCUSSION

DR. COLE: Dr. Gray, of London, read a scholarly paper on this subject two years ago before the American Dermatological Association. I have seen three such cases since that time.

LUPUS ERYTHEMATOSUS. Presented by DR. CUMMER and DR. LAROCCO.

A negro boy, aged 11, had been presented before the society in January, 1927, and a clinical and histologic diagnosis of lupus erythematosus had been confirmed by all. The condition had started at the age of 4 years or earlier, the scalp, nose, cheeks, chin, auricles, palms and forearms being involved. In July, 1927, two intravenous injections of gold sodium thiosulphate (10 mg. and 25 mg., respectively) were given, followed by marked depression and subsequently by striking improvement and gain in weight. At the time of presentation, the skin was practically clear. There was general adenopathy, which persisted. There were no physical or roentgenologic signs of pulmonary tuberculosis.

DISCUSSION

DR. OSBORNE: There were lesions on the scalp and healed lesions on the ears. I have administered this treatment to fifty-five patients in two years, with good results in about 75 per cent. The poorest results were in cases of the disseminated type. In those cases, I started with small doses and gradually increased. I have had two cases of severe zoster following the injections, two of purpura, three of a rather widely disseminated erythematous papulopustular eruption and two with fixed erythematous patches on the arms lasting from two to three months.

DR. WOLLENBERG: In one case I used large doses of gold sodium thiosulphate, and after the second week an acute dermatitis appeared, resembling an arsphenamine reaction, especially on the fingers. The eruption lasted a month.

GENERALIZED LEUKODERMA. Presented by DR. COLE and DR. DRIVER.

L. Y., a negress, aged 22, presented a generalized diffuse marmoraceous mottling, more profuse on the upper part of the trunk. Most of the lighter areas were small coin-sized. The Wassermann reactions of the blood and spinal fluid were strongly positive, and the cell count of the spinal fluid was 20; the globulin reaction was positive.

DERMATITIS MEDICAMENTOSA (PHENOLPHTHALEIN). Presented by DR. COLE and DR. DRIVER.

H. L., a woman, aged 28, had had a generalized eruption of coin-sized to palm-sized dull red scaling patches for fifteen months. There had been follicular elements in the patches. She had been taking a proprietary medicine for the relief

of chronic constipation, and analysis of the compound revealed phenolphthalein in large amounts. After the medication had been discontinued, the patches had faded to a faint brown, but the follicular character was more pronounced.

DISCUSSION

DR. WILE: I have never seen such an eruption following the use of phenolphthalein. The grouped follicular hyperkeratotis lesions are suggestive of pityriasis rubra pilaris or an unusual form of parapsoriasis.

DERMATITIS EXFOLIATIVA. Presented by DR. COLE and DR. DRIVER.

G. H., a woman, aged 31, while pregnant had developed an eruption on the hands and forearms, for which she had taken "light" treatments and about 60 cc. of solution of potassium arsenite. Following the birth of the child, seven months before presentation, the eruption had suddenly become aggravated, terminating in a universal scaling erythroderma. The skin was bright red, indurated and moist, and was covered with fine, branny scales. There were many fissures in the folds of the body and some atrophy of the skin. Aside from a slight lymphocytosis, the condition of the blood had been repeatedly within normal limits. The patient had not menstruated since the termination of pregnancy.

ULERYTHEMA OPHRYOGENES. Presented by DR. NETHERTON.

H. O., a girl, aged 8 years, had had a scaling erythema of the eyebrows since infancy. The cheeks and upper lip were also involved. There were many tiny follicular papules, some with central plugs. The extensor surfaces of the arms showed some keratosis pilaris. The hair of the scalp was thin, but not abnormal. The Wassermann and Kahn reactions were negative.

LUPUS MILIARIS DISSEMINATUS FACEI. Presented by DR. BARNEY.

A. W., a negress, aged 24, had first noticed brownish papules on the left eyelid two and one half years before presentation. Gradually, the other eyelid, the alae nasi and the lips were involved. There was slight itching. No weight had been lost. On the eyelids and alae nasi and on the lips, including the vermilion borders, there were many pinhead-sized to small pea-sized brownish yellow papules, firm and without ulceration. Biopsy sections from a lesion on the lip showed a definite tuberculous structure, and following tonsillectomy numerous tubercles were found in the tonsils, but no tubercle bacilli could be found in either the skin lesions or the tonsils. There was questionable roentgenologic evidence of pulmonary tuberculosis.

DISCUSSION

DR. WILE: I was especially interested in this case. Sections from the alae nasi were undoubtedly tuberculous. On the eyelids and chin were umbilicated lesions, present only a few days, like those of molluscum contagiosum.

DR. BARNEY: A diagnosis of molluscum contagiosum was suggested previously. I shall make another biopsy examination.

KRAUROSIS VULVAE. Presented by DR. LEVINE.

K. Z., a woman, aged 40, had had pelvic inflammation and a vaginal discharge for twelve years. Hyperkeratotic patches on the labia had been present for two and one-half years. There had been marked pruritis at times.

SCROFULODERMA; ERYTHEMA INDURATUM; PAPULONECROTIC TUBERCULID. Presented by DR. NETHERTON.

M. L., a woman, aged 37, presented erythematous infiltration about the mouths of sinuses on the upper right side of the trunk, the neck and the right axilla, fol-

lowing surgical treatment of tuberculous lymph nodes and abscesses. On the extremities were scars, pigmentation and indolent split pea-sized papules, some with umbilication, central necrosis and crusting. On the lower part of the legs were tender nodules. There were signs of pulmonary tuberculosis.

PHILADELPHIA DERMATOLOGICAL SOCIETY

Friday Evening, April 6, 1928

DR. PATRICIA DRANT, *Presiding*

TUBERCULOUS ABSCESSES. Presented by DR. MARKOWITZ.

An infant, aged 17 months, presented three lesions 2 cm. in diameter: one on the hip of six weeks' duration, one on arm of three weeks' duration and one on the chest of two weeks' duration. The skin was unbroken. The first two lesions showed dark pigmentation, and were soft and filled with a dark green fluid. The earliest lesion was deep-seated, firm to the touch, and not changed in color. The Pirquet test was positive. Pus organisms or bacilli were not found under the microscope. The father had active tuberculosis.

DISCUSSION

DR. WEIDMAN: I think the evidence is rather circumstantial as to this being tuberculosis. Of course the failure to grow pyogenic micro-organisms lends weight to the diagnosis. At the same time, there are so many micro-organisms that must be grown in a particular and suitable medium, that it is not absolutely indicative of tuberculosis if no other organisms grow. Six weeks is a short time, I think, for a tuberculous infection to develop. Still, I have had my fingers burned in a number of cases for judging the condition not to be tuberculosis because it progressed so fast, and I have learned that the presence of a secondary infection may make the tuberculous process develop much faster than one commonly thinks. The Pirquet test and the family history are convincing, but I should be loath to condemn the child as tuberculous at the present stage. I am willing to say that it may be tuberculosis; I would not care to decide just at present.

Of course the possibility of the condition being sarcoid of the Darier-Roussy type comes into mind. These abscesses are so soft that I doubt whether this can be the case, although, of course, the deep, subcutaneous position of the earlier lesion is in favor of that condition. I doubt, however, that this is a sarcoid.

DR. SCHAMBERG: I can understand Dr. Weidman's reservation with respect to the diagnosis of tuberculous abscesses from a pathologic standpoint in a lesion of six weeks' duration, and yet I think Dr. Markowitz has brought forward some strong evidence in favor of that diagnosis. The acuteness of the condition, of course, would make one a little careful about a positive statement, but these lesions started in reality as cold abscesses; the most recent one is — indeed all of them are — of endogenous source, because they began as deep subcutaneous lesions without any inflammation of the skin, the redness only taking place secondarily as they began to point and show a threatened rupture. Of course, one knows these abscesses occur in the course of tuberculosis and, as Dr. Weidman says, there is a family history of tuberculosis and a positive Pirquet test, which in a child of this age has some evidential value. The fact that staphylococci or pus-producing organisms are not present supports the view that they are of tuberculous nature.

I think it would be advisable to incise the youngest lesion and inject the material into a guinea-pig. We are much more likely to get a positive guinea-pig infection than to find the bacilli in smears.

DR. WRIGHT: I saw a child some years ago who developed hundreds of these lesions over the body and finally died. There was one striking feature: an eosinophilia of 50 per cent. It might be interesting to have the eosinophil count made in this case.

ECZEMA AND SYCOSIS; B. PROTEUS INFECTION. Presented by DR. WRIGHT.

B. B., aged 61, presented himself because of an irritation of the nose of an unexplained nature which first developed in 1924; this was followed by a chronic discharge from his ear which had persisted. At the same time that he developed the otorrhea he developed a generalized eruption which was, when we saw him, a generalized eczema; he also had at that time an extensive sycosis. At the present time, the skin has cleared up except for a weeping eruption in the groins and a sycosis involving the chin and upper lip. The discharge from the ear persists in spite of all therapeutic procedures. He said that he had been treated by numerous otolaryngologists, and so far the use of vaccines and local preparations, such as washes and ointments, had been without effect. He was told by various men who examined his ears that the discharge was purely from the external canal. Recently, he was given a depilation dose of roentgen ray over the bearded region, and the sycosis had improved a great deal.

It is of further interest that all cultures from the bearded region have shown only staphylococci and not *Bacillus proteus*, which has never been recovered from that region. There was also a discharge behind the ears.

DISCUSSION

DR. SCHAMBERG: I may amplify some of the remarks which Dr. Wright made in connection with this case.

The discharge from the ear, which has continued for many months, is creamy and fairly profuse, probably one to two teaspoonfuls issuing from the external auditory canal; *Bacillus proteus* in pure cultures has been recovered on several occasions. A vaccine was made from this, and to this vaccine the patient was highly susceptible. A dose of 1 minim would give rise to most violent inflammation of the skin. The vaccine was diluted until only a fraction of a drop of the emulsion was given, and even that produced visible reaction. The patient is sensitive to this organism.

He developed a severe conjunctivitis and corneal ulcer and was seen by an ophthalmologist, who said that he had seen an ulcer of this type which was due to *Bacillus proteus*. The condition cleared up under local treatment, whether influenced by vaccine we do not know. The patient had an extremely low resisting power to pyogenic organisms. Every method was used to remove the generalized eczematoid eruption and with considerable success, yet the sycosis remained uninfluenced. Finally, we were reduced to giving a depilating dose of the roentgen ray, which was followed by marked improvement. During the last few days, he has been given such doses to the eyebrows, chin and upper lip, where the hair still persists. I still feel, as I have expressed myself on a number of occasions, that infinitely better results will be obtained in these cases when the technic of producing effective vaccines is better understood. I am convinced that we are destroying a great deal of the opsonogenic effect of the vaccine by our method of preparation, because some years ago I had an amateur bacteriologist making my vaccines, and the use of the vaccines resulted in violent reactions and marvelous cures.

There is also involvement of the hair of the scalp. The patient is extremely vulnerable to *Bacillus proteus* and to the staphylococci.

DR. WEIDMAN: My first look at the scalp made me think of seborrhea, but of course one can understand how easy it would be for these micro-organisms to pass to an adjacent position. I think it would be worth while to examine the crusts on the scalp to determine whether they contain the same micro-organisms. If this man is, as has been brought out, so extremely low in his resistance, and

if he has these two known micro-organisms, one in the ear and the other on the face, I wonder whether there might be yet another organism, not so frequent in the scalp as in the groin. Whenever I hear of eczematoid eruptions around the penis and groin, my mind turns to one of the fungi, particularly since so much attention is being called to the "yeasts," which are being proved by auto-inoculation to be the cause of some of these infections around the groin. I wonder whether we ought not to admit the possibility that whatever there are potentially pathogenic micro-organisms present on the body they will gain entrance when the resistance is sufficiently low, as in this man.

ULERYTHEMA SYCOSIFORME. Presented by DR. WRIGHT.

G. C., aged 27, a watchman, developed a pustular eruption in the scalp seven years prior to presentation. This condition spread to the face, axillae and inguinal region, and persisted in spite of all treatments, developing into a widespread coccigenic folliculitis of the scalp and beard. In June, 1927, he was given a single dose of x-ray treatment to the scalp and beard by a roentgenologist in a city in northern Pennsylvania, following which, he said, all the hair fell out. After a few weeks, the hair grew in again, and he began to apply an ointment given him by his physician. The hair again fell out and has not regrown. There is an atrophy of the skin of the scalp and of the bearded region. The infection still persists in the occipital region, where there is hair.

DISCUSSION

DR. GREENBAUM: The condition of this patient and of the one previously shown represents a type of follicular infection which is extremely persistent. It is the type of case which we saw some time ago and in which we studied the patient's reaction or sensitiveness to staphylotoxins and found him, as well as others, extremely sensitive. In the one case, and in several others, we were able to induce an immunity to the staphylococcic toxins by repeated subcutaneous injections over a certain period of time. All persons did not show a positive cutaneous reaction; so we assumed that there are persons who are immune to staphylococci.

I think it would be worth while in both these cases to determine whether we are able to induce immunity to staphylococcus filtrates with a view to cure. In one patient with extensive sycosis vulgaris, on whom we tried all sorts of remedies, including the roentgen ray, we obtained complete immunity to the skin test and disappearance of the sycosis, or marked improvement, for a number of months; then he had a relapse; later he became well. Whether the cure was due to staphylococcic immunity, I do not know. In these two cases, it was well worth trying, I believe.

DR. SCHAMBERG: This case presents difficulty because the patient does not give a clear and intelligent history and is unable to do so. According to the statement that he makes, he received one depilating dose of x-ray to his scalp and also to his face; his face is hairless, and there is a slight degree of atrophy of the skin. The scalp, however, shows marked atrophy over the entire area. The skin has a glazed appearance and crinkles on pressure; still the sycosiform eczema persists. One knows that ulerythema sycosiforme itself may lead to atrophy of the hair follicles; it is seen in the type designated lupoid sycosis. It is difficult to say here whether we are dealing with such a case as that, on account of the history of the use of the x-ray. The patient does not give a history of severe enough exposure to the x-ray to account for the atrophy. We shall turn the patient over to Dr. Greenbaum for the toxin tests so that he may determine whether he can immunize him against the staphylococcus.

DR. WEIDMAN: I was going to comment on the same thing that Dr. Schamberg did, the extreme degree of atrophy of the skin on the scalp. I think it is unusual to see it so thin that you can see the veins as clearly as in this patient.

TINEA TONSURANS TREATED WITH THALLIUM ACETATE. Presented by DR. BROWN.

Two colored boys aged 6 and 8, respectively, were given 8 mg. of thallium acetate per kilogram of body weight. It is now twenty-three days since this dose was given, and the hair on the scalp has completely disappeared.

DISCUSSION

DR. SIDLICK: There are one or two points concerning treatment of ringworm of the scalp with thallium acetate which should be stressed. One should be extremely careful in ascertaining body weight and to see that the urine is examined for the presence of albumin; serious results may otherwise follow the use of this drug.

DR. SCHAMBERG: I had an opportunity to see Professor Buschke of Berlin last summer and a number of his patients, as well as a number of rats that he had treated with thallium acetate. The child presented shows a condition which Professor Buschke emphasized — the falling out of the outer half of the eyebrows.

He referred to the fact that the results in depilation varied in different countries; the same dose does not seem to be effective in all nationalities; and it was his opinion that it was due to some difference in the endocrine glands of different peoples. I employed thallium acetate in a dosage of 6 mg. per kilogram of body weight in a woman of about 35 who for many years had a fragilitas crinium leading to breaking off of hair when it was about half an inch long. I thought this treatment might perhaps be better than the x-ray treatment. Ten minutes after she swallowed this dose, she vomited and became ill. She was in bed for six weeks with multiple neuritis, and the hair fell out. She now appears to be developing a hair growth of a different quality from what she had before, and while an insufficient amount of time has elapsed, it is possible that the condition from which she originally suffered will be overcome, for she is just recovering from her nerve pains. One must realize that thallium acetate is not a drug to trifle with. The best results are obtained in young children; but if the child is 9 or 10 years of age and is fat, and he is given 8 mg. per kilogram of body weight, he may develop toxic symptoms.

There is a case on record in England of encephalitis which developed after a dose of thallium acetate. This drug is a double-edged sword to be used for tinea tonsurans only when the x-ray cannot be used; the drug is best tolerated by children from 3 to 6 years of age who are not stout.

A CASE FOR DIAGNOSIS. Presented by DR. STRAUSS.

A woman, aged 52, presented a crusted, discolored lesion on each leg, which had endured for one year. The history was not definite as to the start, and the lesions appear much the same as when they were first seen, except that there is not so much crusting. The woman was admitted to the hospital as a diabetic patient. The Wassermann test of the blood was negative.

DISCUSSION

DR. SCHAMBERG: I understand that microscopic examination of the crust was made for fungus and was negative. What one sees in this patient are circumscribed, more or less symmetrical, deep red discolorations, covered with a crust which is concentrically formed. One must not lose sight of the fact that on the leg below the lesion there is a deep-seated nodule. I would not permit myself any definite diagnosis at the present time, but I think that the possibility of an atypical lupus erythematosus should be kept in mind, because the patches are so distinct, and because of the atrophic scarring; the nodule may be an erythema induratum, which is not infrequently associated with lupus erythematosus. The eruption does not look syphilitic, and the Wassermann reaction is negative. I

think if the condition does not clear up, it would be worth while using intravenous injections of a gold compound.

DR. STRAUSS: These lesions when first seen did not present exactly the appearance they do now. The crusts, instead of being patchy and broken-up, were more or less in one piece and were rather piled up, the center being obscured. At that time, we were not able to see the atrophic center, except in a little patch here and there; at that time, the condition was typical of a rubial syphilid with rather yellow crusts. Under administration of iodides, the crusts have partially disappeared. The patient says she has now been greatly relieved from the pain.

Syphilis was the only diagnosis that was made tentatively on account of the first appearance and the fact that the condition did clear up under the mixed treatment, although the Wassermann reaction was negative.

DR. SIDLICK: I cannot help feeling that if this were a late manifestation of syphilis, the scarring would be more marked than it is at this time.

DR. WEIDMAN: I think the disturbing factor about this case is the deeply infiltrated nodule below one of the lesions. If it were not for that, I would think that this was a mortar-like psoriasis; there is such a form described by the French. It is known that this variety of psoriasis is particularly difficult to clear up. The concentric appearance is another disturbing factor, but the whole case is full of disturbing factors. I think we all admit that this is something of a curio, but, after hearing what Dr. Strauss said about the lesions at one time being entirely covered by this scale, it appears a little more like this mortar-like psoriasis. The infiltration down below does not look like psoriasis.

A CASE FOR DIAGNOSIS. Presented by DR. FANNING for DR. SCHAMBERG.

A man, aged 49, a painter, presented an eruption on his trunk and lower thigh of two years' duration, which appeared at first as a diffuse erythematous eruption, and gradually faded, leaving pigmentary remains in certain areas. There was no history of the patient's taking drugs. The urine was normal; arsenic was not found; the results of the chemical examination of the blood were negative, except on one occasion when the patient had a urea nitrogen of 24 mg. The basal metabolic rate on March 9, was —20; on March 17, —28; on March 21, —13; on March 31, —17. Results of examination of the stool were negative; x-ray examination of the intestinal tract showed a spastic colon. The eruption was moderately pruritic.

DISCUSSION

DR. SCHAMBERG: This patient presents an extraordinary condition. We have studied him thoroughly in our clinic for a number of weeks. We have made chemical examinations of the blood, and differential blood counts; we have noted basal metabolism and studied forty-eight hour samples of urine for arsenic; all of the observations were negative, with the exception of a consistent minus basal metabolic rate. Of course, we all know that minus 15 may be a normal rate, but it has been as high as minus 28 when taken by a competent man. I think therefore some importance must be attached to this result. Now this patient presents a widespread dull erythematous eruption, with circinate borders, involving almost the entire trunk, thighs and arms; as it undergoes involution, it becomes pigmented. There is a moderate degree of itching. The process unquestionably is primarily an inflammatory one, and under the microscope nothing is seen but a low grade inflammation. We thought at one time of an unusual type of phenolphthalein eruption. Apart from the fact that there are no discoid patches, he says that he has not ingested anything that might contain phenolphthalein. The man is highly intelligent.

We are dealing with a chronic, toxic dermatitis, but we are at a loss to explain its nature. It is barely possible that it has something to do with hypothyroidism;

it is one of the most interesting cases that I have seen in a long time, and it still bears study. I would be entirely noncommittal about any definite diagnosis at the present time.

DR. STRAUSS: Are these patches purpuric when they first appear.

DR. SCHAMBERG: No.

LUPUS VULGARIS. Presented by DR. ELLIS for DR. SCHAMBERG.

The patient was presented at the last dermatologic meeting, and a diagnosis of lupus vulgaris was made. We have tried to check up on that diagnosis.

The lesion began five years prior to presentation, as the patient says, with a crust over the eyelid which spread to the cheek and laterally and medially toward the nose. The border, when first seen, was nodular, and some improvement occurred during medication with large doses of potassium iodide. The microscopic section at that time was not characteristic, and the observations on the blood were negative. Inoculations into guinea-pigs gave negative results.

Since last month a second biopsy has been made; this showed definitely a picture of tuberculosis, strongly indicating that the lesion is lupus vulgaris. We have now started treatments with a gold compound and sodium thiosulphate. He was given 0.5 mg. of tuberculin (O.T.), but a focal reaction was not obtained.

DISCUSSION

DR. STRAUSS: If I remember rightly, this patient looks a little better than he did at the last meeting, evidently owing to the administration of a gold compound and sodium thiosulphate. So far, I have not been able to get good results with a gold compound in cases of lupus vulgaris. I have not added anything to the gold compound, but have used it by itself, and in spite of the good results I have had in lupus erythematosus, the results have been very unsatisfactory in lupus vulgaris. The lesions have not been influenced. I was wondering whether the patient had been given anything besides the gold compound and sodium thiosulphate.

DR. SIDLICK: The case is of interest to me particularly because it illustrates once more that clinical evidence is more important than the laboratory data. If I recall correctly, the condition was diagnosed as lupus vulgaris in spite of the first negative report from the laboratory.

DR. WEIDMAN: I do not altogether agree with that. Not long ago a physician sent me some scales which came from the skin of a child. Fungus had been found, and they kept treating the child for ringworm. The lesions would disappear and reappear. Finally, by cultivation I obtained a culture of *Microsporon felineum*. I asked the physician if there were any cats around, and he informed me that there were. As in a case of ringworm of the toes, the condition in that child would be cleared up by anti-ringworm treatment, but by repeated contact with the source of infection he would be reinfected.

Most physicians do not know how to make a biopsy. For instance, they are prone to take it from an atypical lesion and miss the microscopically distinctive features. They do not make the excision from a young lesion in which the distinctive characters of the disease are present. I think the better the physician gets to know the laboratory man and the more they come in contact with one another and establish mutual confidence, the better it will be.

LUPUS ERYTHEMATOSUS. Presented by DR. CROSS. (From the clinic of Dr. Klauder at the Philadelphia General Hospital.)

A man, aged 35, first presented himself at the clinic with a diagnosis of lupus erythematosus and was treated with gold and sodium thiosulphate, and apparently the lesions disappeared. Dr. Klauder said the patient formerly had lesions on the lips and in the mouth which were regarded as lupus erythematosus of the oral cavity.

DISCUSSION

DR. WEIDMAN: I suppose there is no alternative, in view of the presence of the lesions, on the lips, than the diagnosis as presented. I do not know that the histology in such a case would help. When the lesion is in the mouth it becomes macerated, and many parts lose part of their distinctiveness. I doubt whether lupus erythematosus could be diagnosed in this case in the absence of the lesions on the lip.

DR. SCHAMBERG: I would like to add a word to the discussion in order to emphasize the opinion expressed that this appears to be a true case of lupus erythematosus of the mucous membranes. I have seen at times in the past lupus erythematosus of the lips which had gone beyond the dry border and invaded the mucous membrane, but I do not remember seeing such an involvement of the mucous membrane at a distance so remote from the vermilion border. It is a distinctly rare case. The appearances betoken the fact that it is a true lupus erythematosus of the mucous membranes.

A CASE FOR DIAGNOSIS. Presented by DR. CROSS for DR. KLAUDER from the Philadelphia General Hospital.

A woman, aged 35, colored, came to the dispensary with the history that early in November she had had a secondary syphilitic roseola. Two months after the generalized eruption, she was treated by her family physician and received some medication by mouth. In the early part of March, which was four months after the secondary eruption, a swelling appeared at the left sterno-clavicular junction. The reason for the presentation of the case is that this tertiary manifestation followed so early after the secondary eruption.

DISCUSSION

DR. SIDLICK: I wonder whether that history has any bearing on the lesion that the patient presents on the chest. I am inclined to think the configuration of that lesion indicates that it is the beginning of a tuberculous abscess.

DR. GREENBAUM: I think this is a gumma, a very early gumma, and pigmentary remains of secondary syphilis. The patient has a condition that I have been observing for some time, an acute leukoplakia of the gums, not marked but mild.

DR. RAPP: This patient has a 4 plus Wassermann reaction of the blood with both antigens.

DR. WEIDMAN: I think the point to the case is this matter of the short interval of time between the secondary and tertiary stages. I wonder whether one can get around the difficulty by thinking of this last attack as a reinfection and that one is then seeing an old infection which occurred many years ago and which will explain the tertiary lesion.

DR. SCHAMBERG: I would not hesitate to regard this as a gumma. We know there are cases of precocious forms of syphilis in which the late lesions may occur early. This is particularly true in the cases in which arsphenamine is given early and then stopped, giving rise to a disturbance of the course of the disease.

Many years ago, the old teachers in Vienna taught that if one started treatment before the appearance of the secondary infections one would disturb the natural sequence of symptoms. Apart from that, there are cases of syphilis in which one may observe at an early date symptoms usually seen at a much later period.

In a hospital in this city I saw a man who had secondary lesions and at the same time a bulbar palsy. I would be ready to accept the diagnosis of gumma following a relatively short time after the secondary lesions.

A Case for Diagnosis. Presented by Dr. Drant.

A young woman was presented who had had antisyphilitic treatment, according to her history; at the present time, the Wassermann reaction of the blood was negative. She had had one stillbirth and one miscarriage. For nine or ten years, she had been developing a follicular accentuation and pigmentation, which first appeared on the upper arms and then spread to the chest and the back. At the present time, the condition has spread practically all over her body.

Dr. Wright: I do not see why this could not be regarded as a marked case of keratosis pilaris.

ST. LOUIS DERMATOLOGICAL SOCIETY

Norman Tobias, M.D., *Secretary*

Regular Meeting, April 10, 1928

M. F. Engman, M.D., *Presiding*

Profuse Early Syphilis. Presented by Dr. Richard C. Weiss.

A white man, aged 27, a mechanic in an automobile factory, was observed on April 7, 1928. He said that he had been accidentally shot in the legs and thighs (shotgun shell) on Nov. 6, 1927, and that he was given antitetanic serum on the same day. Four days later an eruption appeared, and the patient claimed that this eruption persisted to the present date, slowly and progressively becoming worse. He presented a more or less generalized eruption, thickest on the face, arms and trunk. The lesions were grouped granulomatous papules, coalescing in many places to form plaques. They were of a dull, coppery red. Some of the lesions on the legs involuted, leaving stains. There were a few groups of faint stains on the soles but none on the palms. He had had the eruption on the scalp.

Examination of the blood revealed: hemoglobin, 78 per cent; red blood cells, 5,100,000; white blood cells, 7,700; the differential count was: polymorphonuclear neutrophils, 61 per cent; eosinophils, 7 per cent; small lymphocytes, 28 per cent; large lymphocytes, 1 per cent; transitionals, 1 per cent, and large mononuclears, 2 per cent. The Wassermann reaction was 4 plus.

DISCUSSION

All those present at the meeting concurred in the diagnosis of syphilis.

Psoriasis. Eruption from the Use of Gold Sodium Thiosulphate. Presented by Dr. Joseph Grindon.

L. L., a white woman, single, aged 27, had had psoriasis lesions, at the age of 13 years, on the elbows and knees. The lesions disappeared, returning at the age of 25 and becoming generally distributed. At first they reacted favorably to treatment with the ultraviolet light (Kromayer), but since had become more profuse and more refractory, nothwithstanding twenty months of active therapy. On February 11, the patient was given doses of gold sodium thiosulphate, 0.05 Gm., intravenously, and 0.1 Gm. on February 18 and 25 and March 3. On March 8, a fine papular pruritic eruption appeared on the arms. On March 10, the eruption had extended to practically the entire surface, including the face; the eruption consisted of closely-set, dry, slightly scaly, small maculopapules, which in many places coalesced into patches. The dorsum of the hands and the wrists were swollen, red and infiltrated. Most striking, however, was the appearance of all the psoriatic patches which were dark red and actively inflamed.

Believing that the symptoms might be due to the treatments with gold sodium, this treatment was discontinued, and 0.4 Gm. of sodium thiosulphate was given

intravenously. On March 11, the lesions were larger and more numerous, but the pruritus had ceased. On April 10, the eruption caused by the use of gold solution was fading. The psoriasis had disappeared.

DISCUSSION

DR. GRINDON: This case is unique in my experience.

DR. PUSEY: Several accidents with bad results have occurred from the use of a gold solution in lupus erythematosus. I do not know that it has been published yet, but recently I had a report from an eastern Dermatological Society in which a dreadful experience was recounted. A boy, aged 11 or 12 years, was given an injection of gold solution for an erythematous lupus. With the first eruption, he was given a quarter dose, without reaction. The second showed none; but after the third, the boy set up an exfoliative dermatitis which attacked the conjunctiva causing a destructive corneal ulcer. Both eyes were destroyed. There is no question in my mind that the treatment with gold solution is the only one with which we have had definite results in erythematous lupus. It must be used, but with caution.

DR. WEISS: I have had one patient with lupus erythematosus in whom an intolerable pruritus develops from a full dose, but with a half dose only slight scaliness and dryness of the skin occur, with improvement of the lupus.

DR. CONRAD: I have a patient who, if given the gold solution too fast, becomes extremely dizzy and nauseated. He has to be given it very slowly.

DR. TOBIAS: I have seen hematuria develop after each injection.

DR. PUSEY: I have seen essential hematuria in lupus erythematosus.

A CASE FOR DIAGNOSIS. Presented by DR. CONRAD. (From the Clinic of Washington University.)

G. A., a colored schoolgirl, aged 7, had a history of measles and mumps. In 1924, the child had had chills and fever. After this attack, the toes of the right foot and the third and fourth toes of the left foot turned black and dropped off. This process took about eight months. The mother said that at the beginning the patient also had had a boil on her nose which after healing had left a loss of tissue at that point. There was an induration of about a quarter inch in diameter on the left nostril. There was no history of trauma or of infection. The Wassermann reaction was 4 plus; the mother's Wassermann reaction was negative. The mother did not give a history of infection of the patient before the toes had turned black, nor was any medicine given before this condition manifested itself. At the start, there was severe pain, and the toes were cold to the touch. There was no swelling or constricting band.

The smear from the nose was negative for acid-fast organisms. There was not a demonstrable area of anesthesia. The patient now presents a complete amputation of the toes of the right foot and the third and fourth toes of the left foot. There is not any induration about the edges, or any ulceration.

NOTE.—The patient was seen later, on April 29, and a complete study of the case is now being made. It was presented before the April meeting of the St. Louis Dermatological Society because it was thought this might have been some syphilitic end-result.

DR. PUSEY: This does not look like a dermatological case. It might be anything—but I do not know any dermatological condition that will explain the loss of all the toes from one foot as from a complete amputation.

DR. CONRAD: There is some question as to an infection of Hansen bacillus. The child has a 4 plus Wassermann reaction; the mother, a negative reaction.

DR. PUSEY: I think that there is something pertinent to the history of this child's case which is not known to us, as a burn, or possibly freezing.

LUPUS ERYTHEMATOSUS TREATED WITH GOLD SODIUM THIOSULPHATE. Presented by DR. GRINDON.

B. S., a white woman, single, aged 43, observed on March 4, 1928, had a lesion that had appeared on the bridge of the nose about ten years before, which was given an application of glacial acetic acid, followed by apparent recovery. The lesion recurred seven years before presentation. At first it was small, but attained its full size within the past five months.

At presentation, the lesion was found to be .2 cm. vertically by 1.25 cm. horizontally. It resembled a flat wart, slightly but perceptibly raised above the surrounding surface. At the center there was a greasy, brown, adherent crust, which on removal exposed an irregularly indented bed. Beyond this crust the surface was covered with a grayish, adherent, hyperkeratotic layer, containing a few small sebaceous plugs. The lesion was surrounded by a narrow hyperemic border. Doses of gold sodium thiosulphate were given intravenously once a week, in all five doses, at first 5 cg., subsequently 0.1. On April 7, the lesions had disappeared.

HYPERTROPHIC LICHEN PLANUS. Presented by DR. ERICH BROCKELMANN.

A white man, aged 31, was treated about two years before presentation for a hypertrophic lichen planus, about the size of a silver dollar, on the upper outer third of the left leg, which was of one year's duration, and was accompanied by severe pruritus. This and another smaller annular lesion below the left outer malleolus disappeared after three months' treatment.

More than a year before presentation the patient noticed an eruption on the glans penis which did not change in appearance. There was not any pruritus. The eruption consisted of two annular, sharply defined, flat, whitish lesions, the size of a finger-nail, surrounded by an elevated, solid, extremely narrow band.

DISCUSSION

All present concurred in the diagnosis.

A CASE FOR DIAGNOSIS. Presented by DR. L. E. VALKER. (From Barnard Free Skin and Cancer Hospital, service of Dr. M. F. Engman and Dr. W. H. Mook.)

E. S., a white woman, aged 49, engaged in housework, had had a boil on the right side of the forehead four months before presentation which had been incised by a physician. Simultaneously, a redness of the arms was noticed which shortly thereafter appeared on the face and neck and more recently on both thighs. This erythema persisted to the present time. For the past three months the patient had been having blisters on the elbows which discharged serum and pus for three or four days and then disappeared.

The areas of the eruption included the forehead, cheeks, chin, anterior and posterior surfaces of the neck, the upper portion of the chest, the extensor surfaces of the arms and forearms, the dorsal surfaces of the hands and fingers and the lateral surfaces of the thighs. The skin in the affected areas was deep red, dry, scaly and atrophic. In some regions there was a mottled appearance. In others, the discoloration was more like a mottled sheet. A biopsy was taken from the tissue of the thigh.

DISCUSSION

DR. PUSEY: In my opinion this is the most interesting case presented at this meeting. The process is, I think, the same as that usually seen in acrodermatitis atrophicans, and leaving off the "acro" in deference to the location, I think we would have a good name for it. The lesion on the chest in the exposed area is the most extreme I have ever seen. I have seen cases that presented the same condition, but to a less marked degree. They had a slightly reddish color with a great deal of telangiectasis. It looks like a degenerative condition on the legs and arms

which easily becomes atrophied into this condition. I have an idea that this picture is a senile change in the skin largely produced by the effect of light. The condition on the arms is spontaneous atrophy, or chronic dermatitis atrophicans.

DR. ENGMAN: This condition, which is seen in varying degrees in older women whose necks and chests have been exposed to the light for years, owing to the fashion of décolletée, shows the effect of the actinic rays on the skin. On the arms there is a senile condition of the skin. Dr. Pusey has explained it; no one has named it.

A CASE FOR DIAGNOSIS. Presented by DR. VALKER. (From Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

F. S., a schoolgirl, aged 16, three months before presentation had had a small ulcer in the left nostril, which was irritated by scratching; the infection spread around the tip of the nose, which was surrounded by an area of erythema, studded with several crusted papules. The left nostril contained a few papules which were covered by a crust. Considerable granulation tissue was present which almost obstructed the nostril.

The Kahn test was doubtful; the dark-field examination gave negative results. The differential count was: lymphocytes, 28 per cent; large mononuclears, 5 per cent, and polymorphonuclears, 66 per cent. The examination of the blood showed: red blood cells, 4,700,000, and white blood cells, 8,200.

DISCUSSION

DR. LANE: When we first examined the patient in the clinic, Dr. Weiss thought that there was a fading macular lesion along with a primary lesion of the nose. This eruption of three months' duration, however, could hardly be a late syphilitic manifestation, and today it appears too acute for a tuberculous process. On the inner surface of the lateral border of the nose, there are some minute, dry granulations that resemble lesions which occur in the mucous membrane of the mouth.

DR. PUSEY: In the absence of a definite diagnosis of syphilis or tuberculosis (and I think one cannot make a definite diagnosis of either), I think that it is explainable on the ground of simple (chronic) infection of the pus organisms in the lesions kept up by maceration, an infection prolonged by fissures and constant irritation by secretions. I looked for evidence of syphilis; if there was a chancre, spirochetes would be found; I could not make out any ulceration that suggested late syphilis or any suggestion of tuberculous lesions.

DR. GRINDON: This is about the fourth or fifth case of its kind that I have seen which have looked much alike. This condition has been called acne atrophicans ulcerosa nasi. It develops near the tip of the nose, showing minute bullae or vesicles with depressed centers. In some cases the ulceration extends down the upper lip, and usually up one ala of the nose. These cases were alike in the absence of any evidence of syphilis or tuberculosis. The only condition found was a staphylococcus. Therefore, I accept the opinion that it is simply a pus infection anatomically situated to favor its growth and development. The cases that I have in mind were all in adult men.

HYDROCYSTOMA. Presented by DR. VALKER. (From Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

L. K., a woman, aged 70, presented numerous shiny, translucent, pinhead-sized vesicles on the forehead, cheeks and temples, of twenty years' duration. Some of these lesions were deep seated, others were superficial. They were firm and tense to the touch. On incision a clear fluid escaped.

DISCUSSION

All present concurred in the diagnosis.

A Case for Diagnosis. Presented by Dr. Valker. (From Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

L. K., a woman, aged 76, presented a lesion of thirty-five years' duration. At the age of 41, a black spot the size of a pea had appeared in the mid-portion of the right cheek. Pigmentation spread from this place to involve almost the entire portion of the right cheek. Some of the spots became raised and hard. Two of these were treated with radium in 1925. Both of them disappeared. Later new nodules appeared just lateral to the outer canthus of the right eye.

The patient, at the time of presentation, presented a marked black pigmentation of the right cheek. This involved the upper one-half and extended to the side of the nose and to the lower and upper right eyelids. Near the ear the color became dark brown. Just below and lateral to the eye there were four raised tubercles varying in size from that of a pea to that of a bean, with rough, warty surfaces. These tubercles were slightly indurated. The areas treated with radium were lighter and did not show a raised surface. A biopsy was made of the warty and pigmented lesions.

DISCUSSION

This case was presented last November (Mississippi Valley Dermatological Association). At that time a diagnosis of senile lentigo was considered.

Multiple Epithelioma. Presented by Dr. Valker.

A. L., a woman, aged 48, had lesions, the size of a pecan, on the abdomen, of four weeks' duration. They were pinkish and slightly raised. At the upper border there was a hard, slightly crusted papule the size of a pinhead. A new patch, behind the left ear, showed slightly raised pearly edges. The patient has had lesions on the face for many years and these have been treated with radium.

DISCUSSION

All present concurred in the diagnosis of multiple epitheliomas.

Purpura Rheumatica. Presented by Dr. Valker.

J. V., aged 17, a Mexican, had an eruption of ten days' duration, which had begun on the legs and had spread to other portions of the body. There was a history of acute tonsillitis three weeks before presentation, and with the onset of the eruption there had been considerable pain and swelling in the joints of the hands and fingers. The eruption was distributed over the thighs, legs and feet. It consisted of purplish and red macules which varied in size from that of a pinhead to that of a button, and which did not fade on pressure. The metatarsophalangeal joints of the right hand and the same joints of the left index finger were swollen.

The urinalysis was negative. The blood culture was also negative. An examination of the blood showed: red blood cells, 4,550,000; white blood cells, 6,800; lymphocytes, 23 per cent; large mononuclears, 7 per cent and polymorphonuclear neutrophils, 78 per cent.

Leprosy (?). Presented by Dr. Valker.

W. S., a colored man, aged 41, married, a laborer, in September, 1926, had noticed small papules on the eyelids and similar lesions about the ears, nose and chin. The lesions gradually coalesced (those on the eyelids remained distinct). On the anterior surface of the neck, there were a number of grouped lesions which assumed various configurations, some circinate and rather firm. A few isolated papules were noted. Similar lesions were present on the back of the neck but these remained isolated. There was one patch on the occipital region.

Simultaneously, an eruption appeared on the elbows, several patches on the back, a patch in the right popliteal area, two patches on the chest and several

lesions on the thighs and legs, especially on the right knee. There were two rather large lesions on the left wrist. The lesions on the body were thickened, inflammatory, and were covered by whitish, glistening scales. The lesions on the face and neck did not have any scales.

Within a year after the onset of the eruption, October, 1926, the eruption had progressed to its present stage and had not changed since. The patient did not have any subjective symptoms. His wife was in good health. There were not any children. There was a history of miscarriage in 1916.

Two biopsy sections were taken. The Kahn reaction was 4 plus.

DISCUSSION

DR. ENGMAN: The lesions around the nose and neck at first suggested leprosy. They have been carefully studied and Hansen bacilli have not been found. I suggest that the case be held for careful observation.

LUPUS ERYTHEMATOSUS. Presented by DR. VALKER.

J. L., a colored man, aged 62, presented lesions on the scalp and back and on the dorsum of the hands. The lesions on the scalp were from 1 to 4 cm. in diameter, with smooth, irregular, purplish, piled-up borders, showing definite alopecia, inflammation and atrophy. There were three lesions on the back, one large lesion about 10 cm. in diameter, and two smaller lesions about 1 cm. in diameter. These presented a similar picture to that of the scalp, with a rough, granulating center. The lesions on the knuckles were small, with smooth borders and showed definite atrophy.

DISCUSSION

DR. PUSEY: I thought that he might have a lupus.

DR. WEISS: I am not convinced of the diagnosis. The edge looks suspicious. In negroes one sees lupus with that edge running out in regular arrangement from the edge, but I am not so sure what the section will show. I want to prove it.

DR. PUSEY: I recall one case of extensive erythematous lesions in a negro. The patches were red or flesh color, but all the patches were white in the center with depigmentation. It might be epithelioma. I read an account of a case shown in Baltimore or Philadelphia about a year ago. In the discussion of the case I was one of those who thought it was an extremely superficial epithelioma. I remember well another case. I did think that it was a superficial epithelioma and presented it as a case for discussion, but the histologic observations showed granuloma annulare. Some lesions were on the cheek, some on the hands. Granuloma annulare usually occurs on the hands. I mention this as an indication of how difficult it is to tell about superficial epithelioma unless there is a definite pearly border.

AMEBIASIS CUTIS. Presented by DR. VALKER.

A white man, aged 64, a switch oiler, was presented because of a condition which began one year before presentation as small "pimples" on the hands and forearms. These healed slowly but others continued to appear. He had been treated by a private physician without relief. The disease maintained the same papular evanescent character until July, 1927, at which time the lesions became larger and ulcerated, discharging a seropurulent material. Increase in size was by coalescence of contiguous papules and by necrosis. The eruption became painful only when the ulcers appeared. The eruption was distributed over the ventral and dorsal surfaces of both forearms, wrists and hands, external and internal surfaces of the ankles, the right ear, the forehead and right cheek. The initial lesion consisted of a tubercle the size of a pea, which later became pustular. A crust then formed on the surface. The older lesions were from light to deep purplish-red, irregular ulcers and carbuncle-like masses, extending above the surface of the surrounding skin. The central ulcerated portion was cryptic and presented

numerous pustular orifices. The borders were composed of papillae-form elevations and corresponding depressions. Scales and crusts covered portions of the ulcers, and beneath them there was a yellow serous or thick purulent exudate. Some of the lesions did not progress to the ulcer stage, but formed crusted plaques which disappeared leaving depressed scars.

The examination of the blood, on Oct. 13, 1927, showed: red blood cells, 3,720,000; white blood cells, 11,240; on November 16, red blood cells, 4,600,000; white blood cells, 9,200; hemoglobin, 80 per cent; the differential count was: polymorphonuclears, 64 per cent; lymphocytes, 34 per cent, and large mononuclears, 2 per cent. The urinalysis was negative for albumin, sugar and casts. Amebas have been demonstrated.

DISCUSSION

DR. ENGMAN: This man was presented at the meeting of the Mississippi Valley Association. Amebas were found in the skin and at this time, in the section of the large glands, the same process is found. It is interesting to note that in the literature of the subject the opinion is advanced that Hodgkin's disease is an amebic infection of the glands. These glands run in clumps.

GRANULOMA INGUINALE. Presented by DR. GRINDON.

A colored man, aged about 25, had extensive scars in both groins. There were prominent granulating lesions on the penis and scrotum. The patient showed much improvement after injections of antimony-potassium tartrate.

DISCUSSION

DR. GRINDON: We see a great many cases here. We are all familiar with the chronic Ducrey infection (referred to previously by Dr. Pusey), but that does not show the features that are seen in granuloma inguinale, such as granulation tissue-like papillomatous masses, with scarring, sinuses and prominent masses breaking out here and there and extending down into the inguinal and genitocrural field.

DR. BROCKELMANN: Probably cases of Balanitis gangrenosa have to be included in the differential diagnosis with granuloma inguinale.

DR. ENGMAN: Have you seen cases in this country?

DR. WEISS: Yes, a patient, who had an extensive case in which the condition was healed entirely with the exception of one small place about the size of a dime, recovered following the administration of tartar emetic.

DR. PUSEY: I think that we confuse some of the conditions that have chronic inflammation from Ducrey's bacillus with lymphogranuloma inguinale. The only universal characteristic is a chronic infection occurring in dirty patients, below normal physically.

DR. GRINDON: I would not say that. My first case was in a respectable old negro of clean habits.

DR. PUSEY: As I recall the cases, they were in patients distinctly below par and with subnormal resistance, and nearly all of them had phimosis.

ACUTE PEMPHIGUS (WITH APPARENT RECOVERY). Presented by DR. GRINDON.

A colored man, aged 35, a laborer said on admission that he had been acutely ill for two weeks, his illness beginning with painful lesions in the mouth and throat, pain in the eyes and headache, followed by chills, fever, prostration, swelling of the feet and later by aching of the muscles and joints. On the fourth day of the illness, bullae developed at several points. The interior of the mouth was denuded, bleeding and painful, so that the patient could eat only soft food. Swabbing with cocaine was necessary before eating. The bullae increased in size and number, tending to heal at the centers and to spread at the margins.

On admission, the leukocyte count was 20,000, with 30 per cent eosinophils. The next day tryparsamide was administered, 2 Gm. intravenously. This was repeated once a week, totaling four doses, with coagulen 1.5 cc. subcutaneously every other day.

Improvement was noted on the third day. A few new lesions appeared. The lesions of the mouth healed rapidly. At the end of twenty-five days' hospitalization, the patient was discharged apparently well.

DISCUSSION

DR. GRINDON: This is the third case of a patient apparently successfully treated with tryparsamide. I have been unfortunate with the Davis treatment, although in one case (reported in Clinics of North America) the condition cleared up and the bullae ceased. The patient lived for five months but later died apparently from exhaustion. Unfortunately, we did not get a postmortem. I believe that she died of the condition that produced the pemphigus in spite of the fact that she did not have any lesions of pemphigus at the time of death.

I had another case that seemed most deplorable. It occurred in a young married woman who had had excellent health until pemphigus suddenly developed. She was given the Davis treatment, but I soon realized that she was going to die. I tried something different: after the first dose of tryparsamide, she began to improve, but a few months ago she died.

Then there was the case shown at the Mississippi Valley Conference in November, a boy, from the Isolation Hospital, who was covered with bullae. Dr. Lohr in charge of the hospital thought that the cure was miraculous.

My conclusion is that various arsenicals are useful in pemphigus. For my part I think that pemphigus, even acute pemphigus — a generic term — is a group of conditions. At first pemphigus sometimes looks like dermatitis herpetiformis.

DR. ENGMAN: Has any one here reported on the treatment with gold solution?

DR. PUSEY: Did it clear them up?

DR. ENGMAN: We cannot say as yet.

MANHATTAN DERMATOLOGICAL SOCIETY

DR. L. SATENSTEIN, M.D., *Secretary*

April 10, 1928

LUDWIG OULLMAN, M.D., *Chairman*

ALOPECIA. Presented by DR. OCHS.

A girl, aged 6, two years before presentation lost every hair on the head and the eyebrows and eyelashes; even the lanugo disappeared. The previous history was negative.

DISCUSSION

DR. WEISS: I think that there is some disturbance of the central nervous system in this patient. Minute doses of thyroid extract, from one-sixteenth to one-tenth grain (4 to 6 mg.) might be given. The hair may be restored unexpectedly with the cessation of the disturbance.

DR. KINGSBURY: I think that the prognosis in this case is bad.

DR. SCHEER: I do not consider this is a case of the congenital type; the mother reports that the patient had fine curly hair. We cannot determine whether the regrowth of the hair is a result of therapy or not. In a case like this which I had in 1917, I treated four areas of the scalp with the Kromayer lamp, at intervals of a week or two. In eight months, all the hair returned on the scalp on both irradiated and nonirradiated areas and also on the eyebrows and eyelids which were not treated. I attribute the results not to the Kromyer lamp but to unknown causes.

DR. OULMANN: We might take roentgenograms of the thymus and pituitary gland, and might make the different tests for endocrine disturbance. In a number of cases on record the hair returned. Ullmann reported a case in which the hair returned after pregnancy. Small doses of thallium might be used in the case under discussion. In my experience, any remedy stimulates first the nerve ends at some particular place or in general, and through these the nerve trunk; if the nerves receive sufficient stimulation without destruction, a cure can be accomplished. It is assumed that in these cases the autonomic nervous system is affected and that by stimulation the nerves of the affected region may function again.

PARAPSORIASIS. Presented by DR. WALLHAUSER.

A woman, aged 35, presented an eruption of two years' duration involving the arms, chest, abdomen and back and consisting of brownish, pale red and slightly scaly plaques with a reticulated configuration. The appearance and location of the eruption suggested the diagnosis of pityriasis versicolor, but the corresponding treatment failed to produce any change in the eruption. The peculiar character of the configuration, suggested a diagnosis of parakeratosis variegata.

DISCUSSION

DR. WISE: Besides Pollitzer's patient, several cases of parakeratosis variegata have been reported and illustrated. In Darier's book, there is a case of a striated and reticulated variety. The eruption should be examined in daylight, at different angles of illumination before a definite clinical diagnosis is made.

DR. ELLER: The diagnosis of parapsoriasis seems justifiable in this case, although it should be verified by a microscopic examination. The patient has two patches on both thighs, which are wrinkled and mildly atrophic, in addition to the lesions on the chest and back.

LINEAR NEVUS. Presented by DR. OCHS.

A man, aged 33, presented a linear nevus over both eyebrows. The duration of the lesion was reported as six or seven years. There was no infiltration and no elevation. There was no exfoliation or erythema. The duration was not known, but it was first noticed about six years prior to presentation. With extremes of temperature, the nevus became more conspicuous and was accompanied by a headache.

DISCUSSION

DR. ELLER: I never saw a lesion like this and do not believe that it is a nevus. I have no definite diagnosis to offer.

DR. MOUNT: I do not consider this a nevus. It appears like a condition produced from some external cause.

DR. WISE: I would have to see the patient in daylight before making a positive diagnosis.

DR. SCHEER: I think that the lesion is caused by irritation.

DR. GILMOUR: I am inclined to consider it a case of chloasma.

DR. PAROUNAGIAN: I do not agree with the diagnosis. The condition might be an atypical form of lupus erythematosus, tinia or an atypical form of morphea or scleroderma. The sharply demarcated borders and the slight scaliness prevent a diagnosis of nevus.

DR. MACKEE: I would consider chloasma, leukoderma and possibly seborrheic dermatitis. I doubt that the lesion is a nevus.

DR. OCHS: I have watched the lesion for four months; sometimes it is prominent and fairly dark. It did not show up so well on presentation. As a rule, it is a sharply marginated, dark, linear pigmentation that goes from the center of the brows to the temples on both sides, without scales or subjective symptoms.

BROOKLYN DERMATOLOGICAL SOCIETY

C. ALMORE GAUVAIN, M.D., *Secretary*

Regular Meeting, April 16, 1928

LOUIS CHARGIN, M.D., *President*

FOLLICULITIS DECALVANS AND LICHEN SPINULOSUS. Presented by DR. WALZER.

F. P., a married woman, aged 35, had had nine children, with no stillbirths or abortions, and had never had any previous illness. Her present condition had begun on the body about five months before presentation and had spread ever since. Itching was not pronounced. The lesions of the scalp appeared about three weeks before presentation.

When presented, almost the entire trunk and parts of the thighs, were affected. The primary lesion was a tiny, follicular papule, surmounted with a fine spine. Some lesions were of the color of the skin, while some were pale red. When the hand was rubbed over the body, a grater-like feeling was obtained. The palms showed slight occupational hyperkeratosis. The mouth was normal.

The scalp, especially at the top and front, showed a number of scars, and scattered between them were many follicular pustules, some of them covered with crusts.

DISCUSSION

DR. BEST: The lesions, I think, represent lichen spinulosus. I have never thought of folliculitis decalvans in any way correlated to lichen spinulosus. Do I understand that Dr. Walzer is showing two separate conditions coincidently present, or does he mean that folliculitis decalvans and lichen spinulosus are different manifestations of the same disease?

DR. SKEER: I agree with the diagnosis.

DR. ABRAMOWITZ: In this particular case I think the diagnoses as presented are correct. What folliculitis decalvans has to do with the lichen spinulosus is a question.

DR. WALZER: There is no reason why a patient may not have any two diseases. The association of lichen spinulosus and folliculitis decalvans is rare.

The presence of spines in lesions on the body has no definite pathognomonic significance. There are a number of diseases which show spines: lichen planus, keratosis pilaris, lichen spinulosus, etc., so that there is no distinct diagnosis possible merely because of the presence of spines.

The association of lichen spinulosus-like lesions with folliculitis decalvans—has been previously noted, especially by British observers. Among them are Little, Dore, Beatty, and in this country, Ormsby; Senear (ARCH. DERMAT. & SYPH. **2**:198, 1920) recently reported a case and reviewed the whole subject. Either the condition on the scalp produced an intoxication which resulted in the lesions of the skin, or the whole picture is a result of a common intoxication.

LEPROSY (NODULAR AND MACULO-ANESTHETIC TYPE). Presented by DR. BEST.

B. M., a man, aged 39, an Italian, a laborer, single, had an eruption which began about seven years prior to presentation with the development of nodules on the face. Later, lesions appeared on the arms and gradually spread over the back and lower extremities. The lesions on the face and trunk were for the most part nodular, while those on the extremities and hands were of maculo-anesthetic type. The hands and forearms showed areas of complete anesthesia, while impaired sensation was apparent in many of the nodules. Both ulnar nerves were palpable.

A biopsy of one of the lesions on the back of the neck showed, on section, gram-positive bacilli.

SCLERODERMA OR PARAFFINOMA? Presented by DR. FRANK.

M. W., a man, aged 44, had a negative family history. He had had the usual diseases of childhood. There was not any history of venereal disease. He had had influenza eight years prior to presentation, and had been confined to the hospital for two months, where he had received numerous injections in the arms. After leaving the hospital he had noticed swellings on both arms. Itching was marked at that time. The swellings continued to enlarge.

At the sites of the swellings, the skin and underlying tissue were edematous. The skin was glistening, erythematous and bound down to the underlying tissue. The Wassermann reaction was negative. The epidermis was atrophic. The underlying corium and subcutis showed replacement by dense connective tissue. The usual appendages of the skin were present.

DISCUSSION

DR. ABRAMOWITZ: This is not my conception of scleroderma. The patient gives me the impression of having paraffin tumors. In these cases, especially when of long duration, there are frequently scleroderma-like infiltrations below the skin which resemble histologically scleroderma or sarcoid. When these fibrous processes are examined, they are found arranged as trabeculae containing fat droplets. My suggestion would be another biopsy, stained for fat with osmic acid or sudan red.

DR. SKEER: I agree with the diagnosis of paraffinoma in this case.

DR. WALZER: The patient gives a definite history of intramuscular injections over a period of time. Such indurations as a result of injections of paraffin are not by any means rare, and I do not understand why the presenter should even think of scleroderma. Clinically or otherwise, it has none of the earmarks of scleroderma.

DR. GAUVAIN: I think that the case is one of paraffinoma, as suggested by Dr. Abramowitz.

DR. BEST: My conception of scleroderma is that it is a uniform sclerotic process in the skin. Here are distinct nodules, scattered in the subcutaneous tissue, with sclerotic changes in the overlying skin. When I first saw this patient at the clinic I did not agree with the diagnosis of scleroderma, and I was surprised when Dr. Frank told me that the biopsy report was scleroderma. I think the condition is purely one of sclerotic changes due to the injection of some substance, and the diagnosis Dr. Abramowitz makes is the correct one, namely, paraffinoma.

TUBERCULOSIS VERRUCOSA CUTIS. Presented by DR. WALZER.

J. W., a boy, aged 14 years, had never been sick, and there was no history of tuberculosis in the family.

His present illness dated back thirteen years, when, according to his mother, a splinter entered his buttock while he was creeping on the floor. The lesion apparently healed after a time, but one year later the wound opened again, and had been spreading ever since. He had received only local treatment.

Extending from the anus half way across the left buttock was a serpiginous patch the size of a palm, composed of groups of nodules. The surface of the patch was verrucous. New patches of tuberculous lesions were seen developing close to the main lesion.

While the boy was a little below weight, he did not show any other evidence of tuberculosis.

DISCUSSION

DR. ABRAMOWITZ: I agree with the diagnosis. The interesting part of the case to me is the form of treatment. I think the lesion should be destroyed with electrodesiccation. I do not think that solid carbon dioxide and plasters of various

kinds will accomplish anything and believe that they will only cause irritation. The tubercles lie rather deep in the fat tissue, and one should thrust the needle down deep so as not to miss any of these tubercles.

DR. SKEER: Although one does not see this condition on the buttocks as a rule, and I have never heard of it there before, one can easily see that it might occur there because tuberculosis verrucosa cutis occurs on exposed parts and in places in which there is irritation.

DR. WALZER: As to treatment, the thought arises that the child is possibly subject to systemic tuberculosis incidental to this condition he now presents. I should say that he is not, for secondary tuberculosis from a tuberculosis of the skin is extremely rare. If such is the case, why use extreme methods of treatment? Operation or desiccation I think too active. I would prefer applications of solid carbon dioxide in preference to other methods.

PARAPSORIASIS. Presented by DR. CHARGIN.

D. S., aged 20, single, a plumber had an eruption of one year's duration. It began on the legs and then spread to other parts of the body. On the legs, abdomen and chest, there were patches which were large and round, but some were of irregular outline. The color of most of them was intensely red, and they were scaly.

DISCUSSION

DR. ABRAMOWITZ: I think the condition is parapsoriasis. There are some patches which present a festooned border more like that seen in mycosis fungoides.

DR. WALZER: I agree with the diagnosis. My first impression was that the eruption was caused by the use of some drug, but the arrangement of the patches, slight scaling and duration, lead to the diagnosis of parapsoriasis.

DETROIT DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Regular Meeting, April 17, 1928

H. S. BARTHOLOMEW, M.D., *Presiding*

LINGUA NIGRA. Presented by DR. SHAFFER.

H. W., a man, aged 19, a Duco sprayer, two months previously had noticed a dime-sized area on the dorsum of the tongue, immediately anterior to the circumvallate papillae. When the patient was presented, the patch extended to within 2.5 cm. of the tip of the tongue and 1 cm. from the sides. Its margins were ill defined and yellowish, while the center was dark brown, with a mass of hairlike projections 0.5 cm. in length. Specimens had been examined in potassium hydroxide, with negative results. The patient had not taken any medicine, nor had he used any local application. He said that a similar patch had appeared one year previously, and had lasted one week.

DISCUSSION

DR. GRUHZIT: Goldberg has lately written on the subject of black tongue. He felt that in the southern states it was related to pellagra, and that it faded when carrots were included in the diet.

DR. WANDER: In a case of mine, a man presented the condition every time he used chewing tobacco.

ALOPECIA TOTALIS. Presented by DR. SCHILLER and DR. SCHLEGELMILCH.

R. Z., aged 36, an Austrian woman, presented total alopecia of the scalp, eyebrows and eyelashes, following alopecia areata of seven years' duration. The pubic and axillary regions were also involved.

DERMATITIS MEDICAMENTOSA (PHENOLPHTHALEIN). Presented by DR. SHAFFER.

A girl had had recurrent lesions of general distribution for two and one-half months preceding presentation. There were urticarial patches, with slate-colored pigmentation at the center of the larger ones. There was an acute stomatitis, most pronounced at the commissures of the lips.

DISCUSSION

DR. JAMIESON: The individual lesions are those seen in phenolphthalein eruptions, but the symmetry of the lesions on the hands, the erythema and the involvement of the mouth point to the possibility of erythema multiforme.

DR. PARKHURST: In a phenolphthalein eruption, the early lesions are erythematous, pigmentation appearing later. The mouth may be involved.

"BLEEDING HEART." Presented by DR. SHAFFER.

D. L., a man, aged 49, had a number of tattooed designs on his arms, some containing red pigment. The design on the right forearm showed a cross, anchor and conventional heart, the latter containing red pigment. This red area had been subject to a chronic dermatitis, so acute at times that blood escaped from it, giving the aspect of the "bleeding heart." The other red areas were smaller, but all had been subject to the same sharply localized dermatitis.

DISCUSSION

DR. WOLLENBERG: The patient said that the tattooing was done in the Philippines in 1911, and that the dermatitis had been present for only two years.

FISSURED TONGUE. Presented by DR. SCHILLER and DR. SCHLEGELMILCH.

F. F., a boy, aged 15, had first noticed a tiny ulcer or fissure at the tip of his tongue two years previously. Gradually the fissure attained the length of 2 cm. It had reappeared five times, taking a long time to heal. The outbreaks were said to have been preceded by sensations of pain and irritation, and the last one had occurred four months before the time of presentation. There was a linear, whitish atrophic scar. The Wassermann reaction was negative, and Vincent's organisms or fungi had not been found. A culture showed mixed organisms, including many streptococci.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, April 20, 1928

F. E. SENEAR, M.D., *President, presiding*

PEMPHIGUS (UNUSUAL TYPE). Presented by DR. ORMSBY.

A man, aged 46, had been under observation and treatment for ten years prior to presentation. This case was the first of its type to be demonstrated and recorded. The activity of the disorder varied. On presentation in January, 1926, practically no active lesions were present, but an exacerbation had been going on for two months.

The lesions on the face were distributed in the butterfly area, as in lupus erythematosus and consisted of well defined erythematous patches with superimposed sebaceous crusts. On the chest and back were dull red macules, ranging in size from that of a pea to that of a thumb nail, covered with brown, greasy crusts and scales. Two or three subsiding bullae were also present. The scalp was covered with greasy, yellowish, adherent scales, most marked in the temporal regions. The picture was identical with that ten years before except that the degree of activity was greatly reduced.

DISCUSSION

DR. BRUNO BLOCH: These seborrheic forms of pemphigus are extremely interesting. In a case in my clinic, the entire area of the skin had the same seborrheic aspect. Dermatitis herpetiformis cannot be excluded as a possible diagnosis in this type of case.

DR. SENEAR: I agree with Dr. Ormsby that the disease is an entity, and that it is a form of pemphigus. At present the patient does not show the typical eruption on the body that is associated with the lesions on the face which are of both the lupus erythematosus and the seborrheic type; these types change rapidly from one to the other, appearing and disappearing suddenly.

DR. ORMSBY: It is interesting that three weeks ago, when the disease was rather active, focal infection was discovered in the mouth for the first time. After the removal of one tooth, the condition cleared up almost entirely. The reaction seemed to improve the disorder.

A CASE FOR DIAGNOSIS. Presented by DR. OLIVER and DR. FINNERUD.

This patient appeared before the Chicago Dermatological Society Oct. 19, 1927 (ARCH. DERMAT. & SYPH. **17**:435 [March] 1928) and was presented at this time for the purpose of securing Professor Bloch's opinion of the disorder.

DISCUSSION

DR. BRUNO BLOCH: This is a case which cannot be classified. The lesions on the hands resemble those of lupus erythematosus; those on the back of the hand, pityriasis rubra of Devergie. I am sure that this will be presented in ten years as a case of poikiloderma. Beginning cases of poikiloderma differ greatly from one another; the diagnosis "poikiloderma" is symptomatic, not etiologic.

DR. PUSEY: I share Dr. Bloch's view. I saw a strikingly similar case which showed the factors underlying the disease. A woman had an eruption resembling that in poikiloderma on the neck with telangiectasia, a mottled, waxy appearance of the entire area of the skin and atrophy of the extremities that might have passed for acrodermatitis atrophicans.

DR. FINNERUD: The first time the patient was presented, the discussion was limited to the consideration of poikiloderma or scleroderma as a diagnosis. The case was presented tentatively as poikiloderma, but general opinion favored scleroderma.

A CASE FOR DIAGNOSIS. Presented by DR. ORMSBY.

A woman, aged 48, had a disorder of thirty-five years' duration. The patient was presented at a meeting of this society in January, 1928. The history of the disorder and description of the lesions appears in ARCH. DERMAT & SYPH. 1928, vol. 18, p. 304.

DISCUSSION

DR. PUSEY: This patient may be developing poikiloderma also.

DR. H. R. FOERSTER: On a previous presentation of the patient, I thought the eruption a form of lupus erythematosus.

DR. ORMSBY: A diagnosis of poikiloderma was considered previously but was rejected for lack of knowledge concerning that disorder. I have had the opportunity to study only one typical case of poikiloderma. Investigation is difficult in this case and will have to be postponed. Ichthyosiform erythroderma, the only other diagnosis suggested, should be considered.

PURPURA. Presented by DR. WAUGH.

A man, aged 31, was in good general health and did not give a history of a similar disorder or rheumatic or arthritic disturbance. He developed an acute infection of the tonsils. Two days before presentation he first noticed purpuric macules ranging in size from that of a pinhead to that of a split-pea, on the upper part of the trunk. When presented, the patient had numerous lesions on the shoulders and trunk; these were more discrete on the extremities and face. Purpuric lesions were not found in the oral cavity.

A CASE FOR DIAGNOSIS. Presented by DR. OLIVER and DR. FINNERUD.

A girl, aged 9, an American of Polish descent, had an eruption on the neck, trunk and extremities of three years' duration but did not offer subjective symptoms. The patient was presented before this society in 1927. The lesion was marked on the back and sides of the neck where it was first noticed. A few weeks after its appearance, similar brown spots were noticed on all surfaces of the trunk, thighs, legs, arms and forearms. The majority of the lesions, however, appeared during the year before presentation. The foster mother of the child stated that the patient's skin had always been unusually fair and free from freckles before these brown spots appeared. A brother and sister of the patient who were both living and well did not give a history of any skin disease. The patient who was one of twins, delivered at full term, was reported to be more delicate than her twin sister; aside from an attack of bronchitis and tonsillitis every winter, however, the general health was good. The tonsils had been removed shortly before presentation.

Examination showed numerous discrete, round, oval and irregularly shaped, light brown macules, varying in size from that of the head of a match to that of a pea, or larger, on the neck, trunk and extremities; the lesions were most marked on the neck and extremities. Lesions were not found on the hands, feet or face, and the mucous membranes of the mouth were normal. On the forearms and legs, this light brown discoloration was practically diffuse; in the popliteal spaces it was of vitiliginous appearance. The lesions did not urticate with rubbing. There was possibly some reticulated atrophy of the skin of the back of the neck and shoulders. The Wassermann reaction was negative, and the result of the Pirquet test was weakly positive. Urinalysis gave negative results, and the blood chemistry showed readings as follows:

	Mg. Per 100 cc. of Blood
Urea	34.0
Urea nitrogen	11.0
Uric acid	2.7
Creatinine	1.0
Sugar	93.0
Nonprotein nitrogen	30.0

Pulse, respiration and temperature were normal, as was the differential leukocyte count of blood. A roentgenogram of the chest showed increased shadows in both lungs, with innumerable shadows of small calcified glands at each hilum and some fibrosis in the upper lobes. The basal metabolic rate was plus 7. Histologic sections did not show any pathologic changes with the exception of a heavy pigmentation which was limited to the basal layer of the epidermis. This pigment did not contain iron and apparently was melanin.

DISCUSSION

DR. BRUNO BLOCH: This case is especially interesting in the respect that the hyperpigmented brown spots, because of their form and their distribution, are not of the type found in Recklinghausen's disease. These cases are related more to the group of ephelides and are usually familial and hereditary. I saw the disorder occur in at least seven members of the same family; three generations had the disease, and the inheritance followed the mendelian law. In this instance, it is interesting that the twin of the patient did not have the disease. It is interesting further to note it is the hereditary and not the exogenous factor that predominates in this case; thus the face which was exposed to the light was not affected and the body which was not exposed to the light developed most of the spots. There is a malformation of the pigmentary system of the skin, with active formation of ferments in certain limited areas.

DR. WILE: It may seem presumptuous to discuss pigment in the presence of Professor Bloch. I was impressed, however, with the fact that I have seen cases of Recklinghausen's disease which resembled this, without tumors and with large amounts of pigment. I think that Dr. Bloch's description would fit in quite well with the cases of Recklinghausen's disease in which the formation of pigment rather than tumors is the predominant factor. In this case the patches that most resembled the hereditary disturbances of pigment in Recklinghausen's syndrome were seen on the buttocks.

DR. FINNERUD: Not only were there hyperpigmented macules but the skin in certain other areas was almost totally depigmented. It was much whiter than the skin on the face or that on other apparently uninvolved areas. I think that this suggests vitiligo.

DR. PUSEY: I agree with Dr. Bloch's diagnosis. The lesions on the body first suggested urticaria pigmentosa. It is undoubtedly a congenital anomaly of distribution of pigment. Since we have been seeing cases of Recklinghausen's disease with only the pigmentary disturbance, it has been difficult to diagnose similar conditions. On the back of the neck of this patient are freckles that suggest xeroderma pigmentosum; on the legs are lesions with and without hyperpigmentation. I think that the case can be classed as a congenital anomaly of pigmentation.

LUPUS ERYTHEMATOSUS DISSEMINATUS. Presented by DR. ORMSBY.

A woman, aged 39, had a disorder of the skin, of three years' duration. The first lesions, which developed on the face beneath the eyes, remained localized for one year; when general dissemination occurred. From December, 1926 until a month before presentation, she was under the care of Dr. Osborne (Buffalo). On account of the severity of the attack, only palliative treatment was employed for the first three months. In March, 1927, treatment with gold sodium thiosulphate was instituted; the beginning dosage of 2 mg. was gradually increased to 100 mg. Approximately thirty injections were given by Dr. Osborne. During the month prior to presentation, four more injections were given. The improvement was remarkable; relics and fading lesions were seen only on the face, neck, chest and arms. The general health was restored to normal.

LUPUS ERYTHEMATOSUS. (DISCOID TYPE). Presented by DR. ORMSBY.

This patient was presented to show the result of treatment with gold sodium thiosulphate. When this treatment was first instituted in May, 1908, the patient was 38 years of age. The treatment was inefficient up to June, 1927, and the disorder gradually spread. At that time, both the cheeks and the nose were the seat of an active lupus erythematosus. From June 19 to the time of presentation, the patient received twenty-seven injections. After the first eleven the disorder practically disappeared. The treatment was then suspended but was resumed four and one-half months later, when the disorder again became active. At the time of presentation, the disease did not show signs of activity and apparently had disappeared, leaving smooth, pliable scar tissue.

LUPUS ERYTHEMATOSUS. Presented by DR. ZEISLER.

A man, aged 45, whose disorder was of four and one-half years' duration, received eight injections of gold sodium thiosulphate, with complete disappearance of the lesions.

DISCUSSION

DR. MICHELSON: Gold therapy is in general use, I think, with good results in the chronic, discoid type of lupus erythematosus.

DR. BLOCH: I note that in this country gold sodium thiosulphate is used in these cases. We do not use sodium aurothiosulphate, but we employ 4 amino-2 auro-thiophenol carbonic acid alone or, if necessary, alternate with neosilver-arsphenamine. All dermatologists who have treated patients with lupus erythematosus must admit that the whole nature of the cure improved after gold therapy was instituted.

Sodium aurothiosulphate has been much used in the Swiss sanatoriums for cases of tuberculosis. I have seen cases there in which the patients were treated with large doses of sodium aurothiosulphate with serious toxic effect. In some cases in which the patients were treated with thiophenol carbonic acid, bad results have occurred also; sodium aurothiosulphate, however, seems to have more of a toxic effect than the thiophenol carbonic acid. These preparations must be cautiously applied. I never use them without warning the patient of a possible bad reaction. The application of these preparations provokes the formation of tuberculids, a strong proof that latent tuberculous foci are aroused.

DR. PUSEY: I have seen the same reactions. The gold preparations are the first to be used with any confidence in lupus erythematosus; the results from this treatment are brilliant. I was impressed with the report of one depressing accident, however, from the use of these preparations. One-fourth dose was given to a child about 12 years of age, without a reaction. A full dose administered a few weeks later caused a terrific toxic erythema with bullae on the cornea. This keratitis resulted in complete opacity of the cornea, and total blindness of the child. In my experience with a small number of cases, there has rarely been a reaction, but all possible care should be used in administering this treatment.

DR. WILE: I had one case of old discoid lupus erythematosus with almost fatal results following a single injection of 50 mg. of gold sodium thiosulphate. A pronounced edema of the face developed; the eyes were entirely obscured and the skin seemed ready to burst. A terrific toxemia, with fever, appeared. The recovery followed almost the course of an erysipelas; the patient presented almost a complete picture of sepsis, with chills and fever. With the resolution of this process, however, the lupus erythematosus practically disappeared.

DR. MICHELSON: How was the gold therapy combined with the neoarsphenamine?

DR. BLOCH: They were not used together. One type of treatment was given a few weeks after the other.

DR. SENEAR: It is interesting to recall that at the St. Louis meeting, Dr. O'Leary contrasted the results which he obtained from gold and sodium thiosulphate, with those of Dr. Goeckerman from sodium aurothiosulphate. Dr. Goeckerman secured better results without toxic reactions, whereas Dr. O'Leary had some disturbing toxic reactions in his cases.

DR. ORMSBY: I presented these patients for two reasons: first, to show Professor Bloch some of the results of treatment with gold sodium thiosulphate in this country, and second, to discuss the toxic reactions obtained with this drug. A patient treated by one of my colleagues left the city. Two weeks later, he became sick and died. Evidence of aplastic anemia was found at autopsy. This is the only fatal result that has been brought to my attention. I feel, however, that we should be cautious in the use of gold preparations. It is important to begin the treatment with a small dosage. The only reaction of any moment occurred when the initial dose was large. The reactions were overcome success-

fully by the use of sodium thiosulphate which seems to have the same effect on these reactions that it has on toxic reactions from mercury. There seems to be no doubt about the value of this method in combating disagreeable reactions. When thiophenol carbonic acid was first used, severe reactions were reported; in one instance as small a dose as 1 mg. proved fatal. For this reason, the acceptance of this drug was delayed. Early reports appeared to show fewer toxic affects from gold sodium thiosulphate than from thiophenol carbonic acid. The gold preparation, therefore, has been widely employed in this country. At the Mayo Clinic thiophenol carbonic acid and gold sodium thiosulphate have been employed with an equal incidence of unpleasant reaction. It should be emphasized, however, that the dosage of thiophenol carbonic acid is smaller than that originally proposed. With properly regulated dosage, both these drugs represent a therapeutic achievement in the management of an hitherto most rebellious disease.

DR. LIEBERTHAL: I would like to learn if Professor Bloch has used the other preparation known as a gold compound. My experience with this preparation includes only one case which was presented by Dr. Stillians, three years ago. I used a gold compound, and the patient recovered.

DR. BLOCH: I have used a gold compound also but much less often than thiophenol carbonic acid. It is wrong in principle to try immediately every new preparation that is produced by the chemical factories; this method does not give definite results. I have at least ten different gold preparations manufactured by different firms. The results from those I tried, however, did not surpass those obtained from thiophenol carbonic acid and I stopped using them.

DR. SULZBERGER: In Professor Bloch's clinic the initial dose of gold sodium thiosulphate is about one tenth of a milligram. In certain cases in which the patients were treated with that small a dose the lesions showed focal infiltrations; in others, even cures have been effected.

DR. ZEISLER: Many of the patients who have received long continued treatment, from twenty to twenty-five injections, apparently have acquired an immunity to gold sodium thiosulphate. I had that experience in two cases; Dr. Schamberg suggested an increase in the dose to 200 mg. every other week instead of a smaller dose once a week.

DR. STILLIANS: When this drug was first tested, it was used in extremely small doses in cases of disseminated lupus erythematosus. In one case there was a violent reaction, with swelling of the liver to four fingerbreadths below the costal margin; this lasted for a considerable time, and subsided slowly. Further gold therapy was withheld, and the patient died.

BLASTOMYCOSIS. Presented by DR. OLIVER and DR. FINNERUD.

A patient who entered the Cook County Hospital in October, 1927, presented a typical blastomycetic dermatitis of three months' duration. He had been a laborer, digging sewers and working on railroads previous to the appearance of the disease which began on the buttocks. When first seen, the lesions were present on the hands, feet, chest, abdomen and face; just below the right eye was a large lesion; impinging on the border of his lower lip was another, the size of a quarter, while on his left cheek was still another, large, linear and irregular in shape. The blastomyces were found in all the lesions.

The patient was treated with potassium iodide internally and roentgenotherapy and finally presented only a few lesions.

BLASTOMYCOSIS. Presented by DR. WAUGH.

A man, aged 42, a Greek fruit peddler, was first seen three years before presentation. At that time, he had a lesion about the size of a five cent piece on the left side of his nose, and a smaller lesion of the same type on the left cheek. Blastomyces were found in these two areas at that time. Under treatment with large doses of potassium iodide, the patient improved materially. Observation and treatment were difficult, but the lesions were entirely healed when the patient was presented.

BLASTOMYCOSIS. Presented by DR. HEDGE.

A case of blastomycosis was presented originally in March. The history of the patient appeared in the published proceedings of the meeting for that month.

BLASTOMYCOSIS. Presented by DR. FINK.

A man, aged 35, presented a disorder of the face of one year's duration, involving the nose and adjacent parts of the left cheek and eyelids. The lesion had a clear scarred center and an advancing active border which consisted of an elevated, verrucous and pus-capped ridge; the outer sides of this ridge showed numerous punctate, epithelial abscesses, in which blastomyces were found.

DISCUSSION

DR. SULZBERGER: These are the first cases I have seen of this disorder.

DR. BLOCH: We never see these cases in our country. If we see clinically similar cases, we find on examination that the disease is tuberculosis. One case of blastomycosis in Switzerland was reported by my assistant, Ramel, in the *Archiv für Dermatologie und Syphilis*. Clinically and microscopically, however, it differs from these cases. I should like to know if inoculations were attempted in different animals and if any allergy was found, as in the case described by Ramel.

DR. PUSEY: I think it might be worth while to mention that we are ignorant as to the origin of these infections. They occur in all classes of persons; and so far as I know, a reason for their occurrence has not been found. It is not based on sporotrichosis, for it occurs in all types of persons, workers and non-workers. My colleagues may not all share this view, but I do not think that an examination of our cases would disclose a key to the origin of this disease.

DR. ORMSBY: The disease has been reproduced in practically all the organs and tissues of animals, chiefly guinea-pigs. In these, however, it has occurred as a general infection; we have not been able to produce skin lesions, although we have inoculated the shaved skin in both guinea-pigs and rabbits.

In reply to Dr. Pusey, I might say that we have attempted to locate the source of the infection. The first systemic case we had occurred in a man whose bedroom was on the second floor of a small building; immediately under his window was a box containing manure. I suspended a number of inverted test tubes containing various mediums beneath the window and directly above the box of manure. This was done in the evening when vapor was rising from the box. After several hours, the tubes were removed and taken to the laboratory. Some non-pathogenic blastomyces developed in these tubes. Professor Coulter of the Department of Biology did the experimental work with these organisms.

DR. FINNERUD: The lesions in blastomycosis may be so identical with those in tuberculosis verrucosis cutis or bromoderma that they cannot readily be differentiated clinically. The organisms can be demonstrated readily, however, in all cases of blastomycosis in which the patients have had little if any treatment.

DR. HEDGE: I had four cases of blastomycosis within a period of two years. The first occurred in a man who handled horses, the second in a seamstress who never saw a horse, the third in a woman on the south side of the city and the fourth in a porter on a Pullman car.

DR. SULZBERGER: Has anything been found to signify that the cases occur more frequently in Chicago, St. Louis, Kansas City and other cities containing stockyards?

DR. PUSEY: The cases are probably more numerous in Chicago, but I think not to the degree of incriminating the stockyards. I have mistaken an iodine eruption for blastomycosis, but never saw any symptom that suggested the origin of this disease.

A Synovial Lesion Extending to the Dorsum of the Foot. Presented by Dr. Mitchell.

A man, aged 70, received a severe wound on the inner side of the left foot at the age of 20 years. No difficulty was experienced until eight years before presentation, when a synovial lesion developed on the distal joint of the second toe. When punctured, the lesion exuded the characteristic jelly-like material, and was found to communicate freely with a large cavity extending a considerable distance up the dorsum of the foot. Filtered roentgenotherapy greatly reduced the quantity of the fluid.

DISCUSSION

Dr. H. R. Foerster: The size and character of the lesion and the definite evidence of communication with the joint, seems to confirm the diagnosis of synovial lesion. These lesions are responsive to roentgenotherapy.

Dr. Ormsby: A lesion of this type is interesting because the major portion is near the joint. As long sinuses as this rarely occur. I saw one that happened to extend from the toe.

Dr. Mitchell: Several orthopedic surgeons stated that they never saw a similar lesion. Single hemispherical lesions in other cases have responded to opening and fulguration. In a lesion as extensive as this I should hesitate to use that treatment. I have used filtered roentgenotherapy, and the patient has improved considerably.

A Case for Diagnosis. Presented by Dr. Oliver and Dr. Finnerud.

A girl, white, aged 7 years, entered the Children's Memorial Hospital complaining of brown spots on the entire trunk and similar scattered lesions on the thighs and arms; these had been present since an attack of German measles one year before admission. There were no subjective symptoms. The diagnosis of German measles was first made at the Cook County Hospital; the patient was then transferred to the Durand Contagious Hospital. There were five brothers and sisters, all living and well, and the past and family histories were irrelevant except that the patient was always rather undernourished, tired easily, had a poor appetite and had numbness of the hands and feet of several years' duration. The bowels were regular; according to the history, laxatives or other drugs had not been taken.

Examination revealed a poorly nourished child with an extensive, light brown, macular stippling of the trunk, arms and thighs which possibly was most distinct on the flexor surfaces. These macules varied in size from that of a split pea to that of a finger-nail. The lower half of the forearms and legs and the hands and feet were colder than the skin elsewhere and were the seat of a decided reddish mottling resembling livedo reticularis. There was no adenopathy, and the mouth and throat were normal except for moderate enlargement of the tonsils.

DISCUSSION

Dr. Bloch: A diagnosis in this case is impossible without a microscopic examination. I do not believe that German measles ever leave such pigmented relics. Further, this disorder has lasted too long to be due to this cause. A beginning urticaria pigmentosa cannot be excluded, as a possible diagnosis, for that may begin after an infection and, as in this case, its lesions are disseminated.

Dr. Lieberthal: Has the patient been receiving arsenic? I believe that in those cases of doubtful etiology we should watch the patients and try to discover the formation of some internal tumor. Since the disorder is of only one year's duration, there may be some change in the suprarenal glands.

Dr. Pusey: I should like to ask Professor Bloch if it would not be unusual for the lesions in an urticaria pigmentosa to be as ill-defined as these.

Dr. Bloch: Yes, it would. I think that it is impossible to go farther without a microscopic examination.

DR. PUSEY: It seems to me that this case is simpler than we are inclined to believe. In a colored child, there is a natural tendency toward pigmentation. Is it not possible that this is a case of mere hyperpigmentation secondary to as slight an inflammatory process as German measles?

DR. FINNERUD: As already mentioned, the child had not taken laxatives, tonics or other medicines. No histologic examination was made.

LICHEN PLANUS (PALMS AND SCALP). Presented by DR. STILLIANS.

An American housewife, aged 57, had complained of an itching eruption for two months. Examination revealed a generalized papular eruption involving the entire body from the neck to the feet. The eruption consisted of small angular papules, which were single and arranged in lines and patches, the larger papules having a distinct central depression. On the thighs and legs were rounded nodules, some of which were hypertrophic; others were covered by loose scales which could be picked off easily in sheets, like the scales of psoriasis. On both palms were numerous deep vesicles. A number of small papules were found on the occiput within the border of the hair. The mouth did not show an eruption.

DISCUSSION

DR. HEDGE: The distribution of the typical lesions of lichen planus was characteristic. It was interesting to see the heavy hyperkeratosis of the palm, with the fissures.

DR. MITCHELL: Has Dr. Bloch had any experience in treating the spine with roentgenotherapy in lichen planus?

DR. BLOCH: I tried this type of treatment, at first without much confidence. Different methods of treatment were recommended by different authors. Some gave high dosage which was capable of injuring the nervous system, others gave small superficial doses which could not affect the nervous system; all claimed to have good results. A few patients were improved, some even cured, with irradiation of the spine. Perhaps psychotherapy is the explanation, as in my treatment of warts. I have used both the filtered and the unfiltered ray.

DR. MITCHELL: It is difficult to evaluate the results reported on at the meeting in Strassbourg. Radiotherapy of other parts of the body was declared as effective as that of the spine.

DR. SULZBERGER: In the three cases in which the patients showed more improvement with irradiation than without, the disorder was of the generalized, not the localized, type. One patient improved when treated with a filter through which the rays could not possibly reach the skin.

DR. MICHELSON: The presence of the lesions on the scalp was of interest in this case. Dr. Freeman recently showed a patient with a large scalp lesion at a meeting of the Minnesota Dermatological Society.

DR. H. R. FOERSTER: Since roentgenotherapy of the spine in lichen planus has been brought up, I should like to mention the case of a patient whom I treated a few months ago. A man with an extensive and progressively developing lichen planus was treated in the dorsal and lumbar regions of the spine. A month later, the patient did not show any effects from the treatment. New lesions developed daily. Another treatment with filtered roentgen rays was given according to the technic of Pautrier. During the three weeks following the second treatment, new lesions had not developed, and there was a decrease in the inflammatory character of the existing lesions, a progressive diminution in the inflammatory reaction, and apparent improvement. Examination showed definite involution of all lesions.

DR. HEDGE: I have treated three patients with lichen planus, one with lesions on the shoulders and the other two with a general distribution. I used both filtered doses and weekly exposure of one-fourth unit of the unfiltered ray, with good results in all cases. I also had two cases of chronic papillary eczema in

which the patients responded equally well to irradiation of the dorsolumbar region. Perhaps it is the lesion of inflammatory origin that responds to the treatment.

DR. MICHELSON: I should like to ask Professor Bloch about his psychic treatment for warts. I have tried the method on several patients, with startling results.

DR. PUSEY: I am interested in the psychic treatment of warts, for I have always felt that warts were the one actual lesion of the skin that was influenced by the mental state. I did not know Professor Bloch's method, but I tried to impress children with the idea that removal of the warts would not be difficult.

DR. MITCHELL: In one case I used the opposite technic. I explained that the method would be of little value but agreed to remove the warts if the patient would stand the pain of fulguration. This the child refused to do, necessitating treatment of the warts with Vleminckx's solution which effected a cure in three weeks. I should like to know if Dr. Bloch's method succeeds with plantar warts.

DR. BLOCH: The method succeeds with plantar warts of both types.

ERYTHEMA (ERUPTION CAUSED BY NEWSPAPER). Presented by DR. MITCHELL.

A man, aged 27, had a bright red erythema of one year's duration on the cheeks and about the orbits. It recurred Sunday afternoons about 4 o'clock, after a nap, and was accompanied by intense itching. During the latter part of the week it improved. He had been treated with quartz light and liquids which caused considerable burning. The patient never worked on Saturday afternoon or Sunday and did not use any preparations other than shaving soap on his face. The Sunday paper was read in the morning; after luncheon the patient usually slept until about 4 o'clock, always undressing and getting into bed. He had no contact with colored sofa pillows, blankets or any other possible irritant during the afternoon sleep. Calamine lotion rapidly cleared the eruption. The experimental application of the rotogravure page of the Sunday paper, however, to this area again produced an acute erythema. On April 19, a brown powder which was one of the constituents of the ink used on this page was applied to both cheeks; the erythema reappeared.

DISCUSSION

DR. PUSEY: I should like to know if this disorder was recognized previously anywhere outside of Chicago.

DR. SENEAR: I do not know if Dr. Oliver has definitely decided on the cause of this eruption, but he has obtained all the ingredients of the ink used in the printing plant.

DR. MITCHELL: Dr. Oliver gave me some of the red powder that is the principal pigment used in the ink. The other ingredients do not seem to be active. The skin on both sides of the patient's face was rubbed with the red powder to produce the marked erythema that was visible on presentation. The Saturday evening rotogravure sections of the newspaper and the midweek pictorial produce the same condition. In the pictures the eruption did not show when the ordinary plate was used; with the panchromatic plate and a green filter, however, the color emerged distinctly.

BLENORRHAGIC KERATOSES: ARTHRITIS; PSORIASIS. Presented by DR. MITCHELL.

A man, aged 28, had a disorder of seven years' duration. There was a history of gonorrhea at the age of 20. An impetiginous lesion was present on the glans penis, with psoriasiform lesions about the scrotum and about the nails of the fingers and toes. Lesions were not found in the scalp or on the elbows or knees. The urologist reported no sign of gonococcus activity but pus was found at the meatus on the day the patient was presented.

DISCUSSION

DR. BLOCH: The site of the lesions is unusual for hyperkeratosis of blenorrhagic origin; the lesions themselves, especially on the scrotum, are not hyperkeratotic but parakeratotic. I would think of atypical psoriasis of the scrotum and nails with arthropathic psoriatica.

DR. FINNERUD: In the case of a patient with blenorrhagic keratosis who was admitted to the Cook County Hospital the lesions on the palms and soles were classic, but on the body they were typical of psoriasis. The condition would have been diagnosed as psoriasis but for the lesions on the palms and soles. Deep seated, at first, they eventually desiccated into conical bullae resembling hyperkeratosis.

DR. MITCHELL: I have not had an opportunity to treat this patient. In November, 1927, I gave the patient a roentgen treatment on the penis for what looked like a mild impetiginous lesion. Lesions were not present about the scrotum that that time. In a subsequent patient who showed psoriasis limited to the scrotum and penis, the diagnosis at first seemed doubtful. The diagnosis was confirmed when the patient later developed lesions on the arms and legs. In the present case, the lesions on the genitalia and on the nails suggested psoriasis. It is interesting that Adamson repeatedly asserted that blenorrhagic dermatitis is an atypical psoriasis.

A CASE FOR DIAGNOSIS. Presented by DR. SENEAR and DR. WIEN.

A Polish woman, aged 18, first noted a patch of moist, itching dermatitis on the back of the scalp fourteen months before presentation. From this spot the eruption spread rapidly over the entire scalp, the ears, arms, thighs and pubic region and soon was associated with a blepharitis and conjunctivitis.

When first seen in June, 1927, five months after the onset of the disease, the involved areas were the seat of a weeping, erythematous dermatitis, with ill defined margins and the margins of the lesions were covered with a greenish crust. Slightly infiltrated papules and pustules were noted in all the lesions. The patient was placed in a hospital and kept under observation for two months. Physical and laboratory examinations all gave negative results except for a culture of *Staphylococcus aureus* and *albus* obtained from the scalp. Treatment consisted of wet dressings of aluminum subacetate, olive oil shampoos and a 2 per cent aqueous solution of gentian-violet locally. A few injections of gentian-violet were also given intravenously. When the patient was discharged from the hospital on Aug. 3, 1927, there was practically complete involution of the lesions on the trunk and only an occasional crusted lesion on the scalp.

The patient remained well except for a mild local activity until January, 1928, when a vegetating dermatitis of the scalp developed, associated with alopecia and a profuse malodorous discharge. This condition still existed at the time of presentation with an associated erythematous, papular, scaling dermatitis of the pubic region, and the adjacent areas on the abdomen and thighs; there was also a similar involvement of the upper extremities.

DISCUSSION

DR. LIEBERTHAL: I have seen a number of such cases, as every one has. The lesions are cleared up, but recur in a few weeks. I am certain that we have to deal here not only with a cutaneous disease, but with the patient's general condition.

DR. SENEAR: Four cases of this type have all followed the same course. I agree with Dr. Lieberthal's opinion that it is a seborrheic process, associated with some underlying pyogenic factor. This patient gave a positive reaction to 80 of 120 proteins. The cultures have yielded nothing but *Staphylococcus albus.*

DR. MITCHELL: Has anything been done to determine whether or not the streptococcus is an active agent in these cases? Sabouraud and his students have recently carried out some work on separating the streptococcus from the staphylococcus by means of crystal violet. It would be interesting to know whether the postauricular infection is streptococcic.

EPITHELIOMA OF THE SCALP. Presented by DR. MITCHELL.

A man, aged 50, first seen Aug. 10, 1927, gave a history of a severe scalp wound, which was caused by a falling object, and a number of broken bones as a result of an accident in an automobile. The patient was treated twice with roentgen therapy, and was not seen again until February 7. Since that time he has had two treatments, and has improved greatly.

DISCUSSION

DR. MITCHELL: This case is interesting in that a damage suit is pending as a result of a severe scalp injury. The patient was treated for a long time for syphilis without any effect. It is doubtful as to whether the injury, which was severe, actually caused the epithelioma. The lesion apparently is radiosensitive, and might have been cured if the patient had been under constant observation.

NEW YORK DERMATOLOGICAL SOCIETY

Regular Meeting, April 24, 1928

JOHN E. LANE, M.D., *President*

PAUL E. BECHET, M.D., *Secretary*

LUPUS ERYTHEMATOSUS: UNFAVORABLE RESPONSE TO GOLD THERAPY. Presented by DR. ELLER.

E. M., a married woman, aged 27, from the Post Graduate Skin Clinic, presented a brownish, erythematous, scaly eruption involving the bridge of the nose and adjoining areas of the cheeks. There had never been any lesions elsewhere. This was a typical lupus erythematosus discoid, of eleven years' duration. She was first seen in August, 1927. Prior to this she had received several types of treatment, including the roentgen ray, radium, carbon dioxide snow, quartz light and iodine with quinine. Atrophy, pigmentation and telangiectasia were present.

She was given gradually increasing doses of gold and sodium thiosulphate twice weekly. At the end of the sixth treatment, a severe constitutional as well as a cutaneous reaction occurred, which latter involved the feet, eyes, mouth, lips, chest and face. The senses of smell and taste were greatly impaired, and the voice became hoarse. The eruption consisted of scaly, extremely erythematous patches, which varied in size from that of a silver dollar to that of a palm, and local burning sensations were present. The dose was immediately decreased, and the brand of the gold used was changed. The lesions of the skin continued to spread under this therapy. A short while later, all treatment with gold was stopped, and sodium thiosulphate was given twice weekly. The reaction gradually subsided, and it was decided after consultation to begin treatment again cautiously with the gold in small doses at weekly intervals. The patient had received up to this time fifty intravenous injections of gold and fifteen injections of sodium thiosulphate. She was presented as a case of lupus erythematosus not responding to gold therapy.

DISCUSSION

DR. FRASER: The lesions on the back are possibly psoriasis.

DR. MICHELSON: I thought that some of the lesions were psoriatic.

DR. BECHET: I do not see why treatment with gold might not fail occasionally. It is not an absolute specific, but despite the fact that it has failed in this case, I still believe that it is the most valuable remedy available in the treatment of lupus erythematosus. I have seen too many remarkable evidences of its efficacy

not to be enthusiastic about its use. Some of the negative results I believe are due to the abandonment of the remedy prematurely.

DR. MACKEE: I would suggest that one should not be discouraged because lupus erythematosus fails to disappear under that number of treatments. I have had several patients who required 150 injections. It is well sometimes to stop the treatment for several weeks or months and then begin again, or to change from one preparation to another.

DR. WILLIAMS: The remedy has not been used long enough to know whether or not it will cure all patients, and a report of these cases ought to go on record. The eruption on the back interested me. I thought at first that it was psoriasis, but I have seen similar lesions with typical scaling border and atrophic center. I agree with the diagnosis.

DR. TRAUB: I agree that all the lesions are lupus erythematosus rather than psoriasis, for even the lesions on the back show distinct telangiectasia with atrophy. In this case in which injections of gold thiosulphate have failed, intravenous injections of sodium thiosulphate accompanied by gold and sodium chloride tablets taken by mouth should be tried.

DR. SHARLIT: It strikes me also that the patches on the back are psoriasis.

DR. MALONEY: It is well to show cases like this. Many have been showing cases in which good results have been secured, and because Dr. Eller got a poor result in this instance does not mean that it is not a good treatment. My impression is that the lesions on the back are those of psoriasis; they seem more like that than lupus erythematosus.

DR. WISE: I believe that all the lesions are lupus erythematosus and none of them psoriasis.

DR. ELLER: I agree with the members who said that all the lesions are lupus erythematosus. After having received twenty-five injections of gold, the patient was given fifteen injections of sodium thiosulphate, but there was only a slight change in the lesions.

DERMATOPHYTOSIS. Presented by DR. ELLER.

L. W., a single woman, aged 27, had an eruption over the left iliac crest, of about two months' duration. The past history was negative except for the removal of tuberculous kidney several years previously. The eruption was slightly larger than a dollar and presented a border about ½ mm. in width, definitely raised and sharply demarcated. There was slight reddening and scaling present, but without suggestion of any vesicles. The center of the patch seemed to be unaffected, and the border was serpiginous. The Wassermann reaction was negative. A microscopic examination for fungi was negative as was also a culture.

DISCUSSION

DR. WILLIAMS: I think that it is ringworm. In addition to the clinical picture the woman has a cat, and I have seen cats give ringworm to three women and two dogs within a few days. I think it is undoubtedly tinea.

DR. BECHET: I am glad to hear Dr. Williams' remarks about cats and ringworm. I have stopped asking people if they have cats or dogs so affected, in relation to the etiology of their ringworm, for they invariably answer no. I think that in this case all the clinical symptoms point to ringworm. The borders are too raised for pityriasis rosea.

SARCOMA OF KAPOSI. Presented by DR. WISE.

F. C., a man, an Italian, aged 55, married, retired, was brought to the skin clinic of the New York Post-Graduate Hospital on April 19, 1928, by Dr. Ochs, with an eruption on the body of three months' duration, and a sore mouth of three years' duration. Three years previous to presentation, lesions developed

in the mouth and over the right scapula, which he believed appeared after being treated for hemorrhoids and anal fistula. Seven months later he had an hemorrhoidectomy. The lesions in the mouth persisted. One year later, he received intravenous and intramuscular therapy without any affect on the lesions. Three months prior to presentation, the lesions became generalized. At first they appeared as if blood had been extravasated into the skin between the toes, which was followed by small tumors. The lesions had been enlarging to the proportions as presented. Swallowing of coarse food became difficult.

Examination revealed violaceous patches varying in size from that of a split pea to that of a silver dollar. These were regularly distributed, generalized, infiltrated and soft. Some were flat and scaly; others were globular, pedunculated or had a sessile base. The dome of the lesions was 0.5 cm. above the surface of the skin. The lesions were located over the second and third toes of both feet, and on the plantar surface and medial aspect of the arch of the left foot, the penis, pubic region, base of tongue, tonsils, mandibular and maxillary joints, uvula, soft palate and over the posterior part of the hard palate. There was neither pain nor inflammation in any of the lesions. The Wassermann reaction was negative, the urine was normal and the blood smear was essentially negative. The results of the chemical analysis of the blood also varied within normal limits.

LUPUS ERYTHEMATOSUS RESPONDING TO GOLD AND SODIUM THIOSULPHATE. Presented by DR. HIGHMAN.

L. P., an American housewife, aged 29, presented herself on June 3, 1927, complaining of a disease of two years' duration. This consisted of spots on the face which became redder when the temperature was warm, and blue when it was cold. The roentgen ray and ultraviolet ray had been used. Results of a general physical examination were negative. There was one lesion on the bridge of the nose, one over the glabella and one on the left malar. All the lesions were typical of discoid lupus erythematosus. The infiltration was slight.

She received an intravenous injection of sodium-gold-thiosulphate 12½ mg., and by July 15, after having received weekly injections of from 10 to 20 mg., the face was cleared of the eruption, and remained so to the date of presentation.

ECZEMA ACCOMPANYING NEPHROLITHIASIS. Presented by DR. HIGHMAN.

P. J. E., an American bank clerk, aged 41, presented himself for treatment on Sept. 25, 1927. He was covered with a universal eruption, of fourteen months' duration. Four years prior to the date of presentation, he had had a similar eruption which began in the groin and was universalized by roentgen-ray treatment. The first eruption disappeared spontaneously in eight months. The eruption for which he presented himself was a recurrence. He had consulted another dermatologist, who wanted to give him roentgen-ray treatment, which he refused.

The general history was negative, except for the fact that pus had been draining from the right kidney into the urine for eleven years. The skin was covered with a patchy, vesiculosquamous, nummular, lichenified and weeping eczema. He improved slightly under conventional local treatment, but after eight weeks of mediocre success, it was decided to hospitalize him. The kidney was found to contain a huge stone. On November 7, a nephrectomy was performed. Within two days, the itching disappeared; the eruption rapidly resolved and had not recurred to date. The eruption had been construed as dermatophytosis, although parasites had never been found. In September, 1927, except for the lesion on the groin, it would have been impossible to regard the case as one of dermatophytosis. The point in presenting this patient was to illustrate the spontaneous cure of obstinate chronic eczema within a few days after a nephrectomy for stone. It also illustrates the futility of local treatment, including roentgen ray, in the presence of uncontrolled factors producing the disease.

DISCUSSION

DR. BECHET: The results in this patient demonstrate the value of the much maligned internal aspect in the treatment of diseases of the skin. The results were probably infinitely better than those which would have followed the mechanistic treatment so popular at this time.

DR. WILLIAMS: It is the most important case presented this evening; if anything would show that eczema is a symptom and not a disease, this is it. Also it brings out the sensitization from some focus of infection which I am convinced is at the bottom of many cases of eczema. Until one gets rid of that focus, the patient will not respond to any other line of treatment. I think the history is the sensitization of the skin and then the response to an external or internal stimulus.

DR. ELLER: The case is particularly interesting to me, for I have had a somewhat similar clinical result. I had a patient, a man, aged 40, who presented himself with a marked pruritic eruption on the trunk. He was given protein tests and roentgen-ray treatment without any result. Later, he was advised to take colonic irrigations for some probable toxemia. After one irrigation, he complained of pain in the right lumbar region; an operation for the removal of stone in the kidney was performed, and the eruption disappeared without recurrence to date.

DR. RULISON: There must be some mechanism involved in this sensitization of the skin, and it is the duty of the dermatologist to work that out. It involves a large number of diseases of the skin. We say that it is a nice result, whereas we should make a more thorough effort to find the mechanism by which the symptoms of the skin arise and see if we cannot control this mechanism and give the patient some relief.

DR. SHARLIT: It is simple to ascribe the cause of the lesions of the skin to a focus of infection; on the other hand, from the point of view of practice and of clearing up the skin, one must remember that many people, in fact most people, have foci of infection most of the time and do not show these manifestations. There is something about the patient which must be ascertained in order to clear up the eczema, for after all, finding the focus of infection is not so much a series of well directed efforts as just good luck. At the best, foci of infection can be looked on as precipitating causes; etiologic causes are other factors.

Recently THE JOURNAL published an article indicating that in urticaria one has to examine the gallbladder in order to find the cause of a vast number of cases of urticaria.

DR. WHITEHOUSE: This whole subject interests me greatly, and I am glad to see it coming up among dermatologists. I have preached it for years. I agree with Dr. Rulison about the sensitization of the skin, but we have to go beneath the skin to solve the problem of these acute eruptions. I have never forgotten Dr. Osler's papers in which he accused the dermatologists of treating symptoms instead of entities. Urticaria, erythema multiforme, purpura, angioneurotic edema are all symptoms of gastro-intestinal, cardiac or kidney conditions. Some of them are fatal. I have seen two or three cases of gallstone lichen planus. What Dr. Rulison and Dr. Sharlit referred to is unquestionably sensitization, but they are all symptoms. I recall a patient with general lichen planus some years ago on whom the surgeon wanted to operate for cholelithiasis; I said, go ahead. The patient had been treated by others without benefit The woman had not been in the hospital two weeks before the eruption was all gone. Another patient with generalized lichen planus threatened to jump out of the window, but the removal of the infection of the gallbladder cleared up the eruption. I remember that during the war a physician, in the uniform of the medical corps from Scotland, said that there had been two or three patients with lichen planus in Scotland whose condition had been cleared up in that way. This subject has come up before, and when

Dr. Luithlen of Vienna read a paper on the subject here some time ago, I asked him what they thought of him over there. He said: "They think I am crazy, but they are beginning to come around to my way of thinking." A great deal of study and thinking must be done along that line, which will change our views.

DR. MICHELSON: A focus of infection that is sometimes overlooked is the prostate gland, which may be chronically infected by nonspecific organisms.

DR. WISE: I think that the operation and removal of the stones was a secondary factor in the cure. I have had patients with generalized dermatitis who got well with nothing except rest in bed, change of environment, stopping office work and so forth, and merely the application of lotion of boric acid — without other treatment; and I think that the cure in Dr. Highman's patient is due in great part to the rest in bed and change of environment.

DR. HIGHMAN: I did not present the case with the idea of emphasizing the point that eczema, when one could not otherwise explain it, was due to nephrolithiasis. I agree that eczema is a clinical entity. Three factors are necessary to produce eczema: first, the skin. If the patient were flayed, he could not have eczema — provided he lived. Second, if he did not have some condition in his body economy that made him responsive, he would not have eczema, and third, if he did not have a precipitating factor, he would not have eczema. The precipitating factor could not be found in this patient, but for general medical reasons the kidney was removed. He had only the shell of a kidney left, and that was infected with colon bacilli among other organisms. The large stone had been present, and the atrophy of the kidney had been going on for so long that the other kidney was compensated, and he did not suffer shock from the operation. I do not know whether it was the chemical disturbance that produced the stone or the infection of the kidney that must be considered as the predisposing factor in the eczema; neither do I agree that the change of environment connected with this operation had anything to do with the cure. As a matter of fact, he had been in another hospital for eczema. In the second hospital he entered one day and was operated the next, and two days later the eczema was gone. That is more than mere coincidence. I believe that in this case the removal of the kidney removed the predisposing factor and that is why the patient got over the eczema.

What I had in mind in showing this case was the unique effect of a nephrectomy on a case of obstinate eczema. This man had been conventionally treated. We have therapeutic impulses. The roentgen ray made him worse, even though it often gets rid of such an eruption. In the meantime, tar, boric acid and other substances were applied without improvement. Then an astonishing upset in experience of this sort shows that we are not yet capable of thinking adequately in terms of such problems; that our horizons are inevitably still too narrow to envisage what confronts us in dermatology, largely because of our biologic ignorance of medicine.

I think this man has a sensitized skin, and it made little difference what the precipitant was, so long as the predisposing factor was present.

NEUROFIBROMA (?). Presented by DR. ELLER.

W. C., a married woman, aged 33, from the Post-Graduate Skin Clinic, had a lesion the size of a palm on the outer surface of the right upper arm, of seven years' duration. Scattered throughout the lesion, there were numerous firm, subcutaneous nodules the size of a pea, which resembled sarcoids in appearance. The Wassermann reaction of the blood was negative, and a biopsy of one of the nodules was diagnosed as neurofibroma by one histopathologist, and soft fibroma by another. The patient had had various treatments, including filtered and unfiltered roentgen rays and radium, and just before presentation she received grenz-ray therapy. Several years before presentation this lesion was diagnosed clinically by the late Dr. Fordyce and Dr. Whitehouse as sarcoid, and the patient was treated for this condition by the roentgen ray externally and by arsenic internally.

NEUROFIBROMA (?). Presented by DR. ELLER.

C. B., a married woman, aged 37, from the Post-Graduate Skin Clinic, had a lesion the size of a silver dollar over the right scapula, of about twelve years' duration. This lesion was circumscribed and consisted of a flat, infiltrated nodule which had a violaceous color. This lesion resembled a sarcoid, clinically. Subjective symptoms were not present, and the past history was negative. She had been treated with radium, and for the past nine months had had several treatments with the Grenz rays, during which time the lesion has shown a distinct improvement. A microscopic examination before treatment was commenced was diagnosed neurofibroma by Dr. Fraser and others.

DISCUSSION

DR. WHITEHOUSE: I am extremely interested in these two cases. They seem to be exactly alike. The patient in the first case was under my care for some time. My diagnosis then was sarcoid. She is not a great deal improved. In the area of the lesion, she gave a history of these nodules forming and standing out from the surface of the skin. It harked back to fourteen years previously, when she struck that shoulder against a plank. The second patient shows a lesion on the same spot which, too, developed from a severe traumatism. The first patient had a black and blue sore spot for seven years before she sought advice. They both developed this peculiar condition. I do not think that the diagnosis is made yet. I cannot conceive of neurofibroma going on in that way without pain. We do not know what these cases are. They are two of the most interesting cases I have ever observed.

DR. MICHELSON: I saw a patient with a similar lesion, which was excised surgically and skin was grafted immediately. The result was extremely good.

DR. BECHET: The cases are extremely interesting. Clinically, it is difficult, if not impossible, to make a definite diagnosis. The interesting point is not so much the diagnosis as the presence of roentgen-ray dermatitis, which if the Grenz ray had been used along would prove that it was not as harmless as was first believed. At the last meeting Dr. MacKee presented a patient with psoriasis in which the condition had been overtreated and in which large doses of both Grenz and Roentgen rays were used, and in that case there was also roentgen-ray sequelae.

DR. HIGHMAN: I think that the first case is a fibroma. The cells are young, and it might be called a fibroblastoma.

In the second case, I do not see that the Grenz rays have done any harm, even if they have caused the skin to turn red. I do not recall that Dr. MacKee showed a case in which the Grenz ray was harmful; so I think that Dr. Bechet's discussion should be modified. I think that if they are expected to do good, they can also do harm. The ultraviolet light is incapable of penetrating paper; so I believe that it can do little more than help in some of the mild dermatoses. All in all, it seems to me that we are dealing with a fibroma or keloid in a patient whose skin became red because it was exposed to intense radiation, not only the Grenz ray, but as a matter of fact the Roentgen ray, and radium, too.

DR. TRAUB: If a report of the histologic picture had not apparently ruled out the condition, I would have suggested clinically the diagnosis of a superficial epithelioma. There were three or four distinct nodules in a linear distribution, several of which apparently extended into the normal surrounding skin. They seemed to be separate from the original condition, and were well outside of the area treated by the Grenz rays.

DR. BECHET: Replying to Dr. Highman's remark, I did not want to give the impression that Dr. MacKee had presented the case as a burn from the Grenz ray, but as a roentgen-ray dermatitis in which both the Grenz ray and the Roentgen ray were used indiscriminately. I think that the case shown tonight shows more than an ordinary redness. I could discern atrophy, and the "cooked" appearance of a roentgen-ray dermatitis.

DR. WISE: I agree in most part with what Dr. Highman said about the utility of ultraviolet light, but I shall never forget a case of angioma serpiginosum in which the patient was cured with treatment by ultraviolet light. It does some good in Bazin's disease, especially of the ulcerating variety.

In this case I would suggest ablation followed by grafting.

DERMATOPHYTIDE. Presented by DR. WILLIAMS.

R. S., a man, aged 38, born in this country, had had a vesicular eruption on the sole of the right foot for about three months, and on the left foot for about six weeks. Recently the eruption had become much more intense, the vesicles being large and confluent, and the skin eroded over the inner aspect of each ankle. For the past three weeks, there had been many deep vesicles on each palm. On the backs of the hands, there was an erythematous eruption, with scattered superficial vesicles. The erythematous rash extended over the forearms and arms, diminishing in intensity toward the shoulder. Over many of the erythematous spots, the surface epidermis had disappeared, leaving a thin collaret. There was a similar eruption of small, slightly infiltrated, erythematous patches on the legs and thighs. Specimens from the foot showed many mycelia, but none could be found in specimens from the hands. The only treatment was the use of an ointment of boric acid. The eruption on the forearms and legs had faded, leaving only brownish stains, and the vesicles had almost disappeared from the palms and soles.

DISCUSSION

DR. WILLIAMS: I wish to make a few points. This does not occur commonly with epidermophyton. I have not seen one. On the other hand, while I have not seen cases caused by epidermophyton, I have seen cases caused by other fungi, and I have seen several cases of tinea of the feet with this secondary rash on the arms and legs. I think that people do not look for it. In the second place, several of the man's toe-nails were affected. I have not been able to demonstrate any organism, but I believe that many cases of tinea are kept alive by an unrecognized infection of the nails. I have had other cases in which I could demonstrate that. The third point is the treatment. When this man was first seen ten days before presentation, he presented one of the worst cases imaginable, showing big blistered areas. His whole treatment was the use of ointment of boric acid. The patients usually get well when treated with boric acid for the same reason that patients with kerion get well — they have been so sick that they develop immunity.

KAPOSI'S SARCOMA LASTING FOR TWENTY-THREE YEARS. Presented by DR. HIGHMAN.

S. P. P., a Russian Jew, aged 53, first presented himself on Aug. 10, 1911, at which time he was 36 years old. He had been troubled with lesions on his legs for six years. These lesions proved to be sarcoma of Kaposi.

The patient was still alive and well, and the point in presenting him was to illustrate that at such intervals as he had recurrences they were easily controlled by means of the roentgen ray, and that the patient had in this manner been enabled to retain his life without handicap. The recurrences took place from about every two and a half to three and a half years. Mild unifiltered radiation was effective.

He had been presented at several meetings of the New York Dermatological Society, and the Section on Dermatology of the New York Academy of Medicine.

VINCENT'S INFECTION OF THE GUMS. Presented by DR. ELLER.

T. B., a man, aged 25, from the Post-Graduate Skin Clinic, had had a disease of the gums, tongue, inner surfaces of the cheeks and hard palate, of three weeks' duration. Ulcerations were not present, but there were numerous dirty, gray patches present on the gums, palate and inner surfaces of the cheeks. Regional

adenopathy was absent, and there were not any constitutional symptoms. The Wassermann reaction of the blood was negative. Smears from the gums and throat revealed the spirillum of Vincent with the fusiform bacillus.

ERYTHEMA INDURATUM (?). Presented by DR. WISE.

R. W., a housewife, aged 30, born in Poland, came to the skin clinic of the New York Post-Graduate Medical School and Hospital on March 10, 1928, complaining of redness and burning in both legs on walking, mainly in the right leg. The condition was of four years' duration.

On the posterior aspect of the lower third of both legs, there were several brownish-red, discoid, sharply defined plaques, which presented fusiform swellings. Pressure caused blanching of the lesions; on palpation they felt cold. The lesions were slightly indurated, and the surface was smooth and free from scales. The clinical appearance was that of erythema induratum, but histologic examination revealed a banal inflammation in the corium. A diagnosis of pernio was entertained.

ERYTHEMA MULTIFORME PERSTANS. Presented by DR. WILLIAMS.

An American housewife, aged 40, had been previously presented before the Section on Dermatology and Syphilology of the New York Academy of Medicine in April 3, 1928. Several diagnoses had been suggested, such as livido reticularis and erythema multiforme.

DISCUSSION

DR. MACKEE: I hesitate to classify it under livido reticularis because there is dermatitis. I am inclined to call it a vascular disturbance due to some unknown toxin.

DR. SCHWARTZ: I agree with what Dr. MacKee said. I would hardly classify it as livido reticularis. There is a dermatitis there due to some underlying intoxication.

DR. WHITEHOUSE: I do not think that it is livido reticularis; I have never seen that raised from the skin as this is. In some places there are patches like dermatitis. I think that it is a toxic rash of some sort, but not livido.

DR. WISE: I cannot conceive of the presence of giant cells in ordinary livido reticularis. The only eruptions I have encountered similar to this one was in a series of patients who worked in a gas vat in Bayonne, and who were exposed to continuous and excessive heat.

DR. MICHELSON: Dr. Ebert and Dr. Becker have both reported extensively on livido reticularis. The term is a large one and covers cases of many degrees of variation.

DR. BECHET: The patient has a sharply outlined lesion on the face suggesting early lupus erythematosus. The erythema multiforme-like lesions on the forearms might belong to the disseminate form of that disease. The appearance of both types of lesions at least warrants a consideration of such a diagnosis.

DR. WILLIAMS: The case is a puzzle to me. I am not satisfied with any of the diagnoses that have been suggested. There are distinctly reticulated patches on the face and arms, but on the knees there are infiltrated patches. Personally, I think that it is a toxic erythema which has affected the blood vessels and produced erythema. I cannot account for the giant cells.

ERYTHEMA TOXICUM. Presented by DR. ELLER.

I. F., an American housewife, aged 30, came to the skin clinic of the New York Post-Graduate Hospital on April 13, complaining of a rash of three months' duration, which was located "all over the body," but which was less intense on the face, breasts and legs.

The patient presented a generalized, purpuric, dry eruption, violaceous in color. The macules varied from 4 mm. in diameter to the size of a pinpoint. The indi-

vidual macule was irregular, and in places presented fine branny scales. The lesions were closely packed on the buttocks and thighs, and were sparsely spread out throughout the rest of the body. The color did not disappear on pressure. Most of the lesions were purpuric, some were fading and appeared pink. The results of the urinealysis, blood smear, chemical analysis of the blood, blood count, bleeding time and coagulation time were all negative. The Wassermann reaction was negative. The microscopic study of a section of tissue showed a dilation of the vessels of the papillary and subpapillary zone, some of which contained blood elements, a moderate lymphocytic cellular infiltration in these zones and a moderate interstitial edema of the collagen; otherwise, there was nothing of note. This picture was that of a moderate, exudative, inflammatory reaction not characteristic of any special condition. There were not any degenerations, hemorrhages or pigment. Stains were made for mast cells and elastic tissue, and from the microscopic observations, urticaria pigmentosa had been ruled out.

DISCUSSION

DR. FRASER: The diagnosis of urticaria pigmentosa should be excluded or established. The case has not been properly worked up for presentation. Sections should have been stained with one of the dyes which bring out the phenomenon of metachromasia. Reaction stains for the presence of pigment should also have been employed. My opinion is that the case is urticaria pigmentosa.

DR. MACKEE: Of course urticaria pigmentosa should be considered, but I was unable to obtain any swelling of the lesions on rubbing. The lesions on the arms are papules, but those on the thighs are scaly macules. I would suggest the possibility of acute parapsoriasis. The patient says that the eruption came on suddenly and has been gradually fading since; that would bring it more in line with the suggestion of toxic erythema, or a drug rash.

DR. HIGHMAN: Of course it is not an easy case to classify. Histologically, the picture is a marked exudative edema without particular infiltration. Whether some of the cells might prove to be mast cells, I do not know; but even if they did, I should say that mast cells would not mean any more than is often seen in a sustained edema of the skin. In other words, the evidence available in a section of this kind is against urticaria pigmentosa. So far as we can go, clinically and histologically, it seems to me to be an exudative edema of the skin. It is too bad we have to give it a name. Where the papules have formed, under the clinical conditions evident tonight, it seems to me that we are dealing with a borderline condition that has elements of urticaria, elements of exudative erythema, and some of the elements of prurigo or chronic urticaria. It does not look like urticaria pigmentosa clinically or histologically, nor does it suggest psoriasis.

DR. WISE: I agree with Dr. Fraser's discussion in every detail. In regard to Dr. MacKee's suggestion, although an American dermatologist has not described acute parapsoriasis, there are three such reports in European literature. From the clinical appearance, I would favor the diagnosis of urticaria pigmentosa adultorum.

DR. HIGHMAN: Do you mean to say that because some one in Central Europe describes three cases of acute parapsoriasis, any one else has to believe it?

DR. WISE: No, but it has been mentioned, and the possibility should be considered.

LUPUS MILIARIS DISSEMINATUS FACEI. Presented by DR. WISE.

E. S., aged 49, born in the United States, married, a packer, came to the skin clinic of the New York Post-Graduate Medical School and Hospital complaining of an eruption on the face, of one month's duration. The patient presented over the forehead, on the eyelids and over the cheeks many scattered, reddish macules and globular papules which were in places elevated and edematous. There were similar lesions on the forearms, backs of the hands, on the knees and over the

buttocks. The neck presented a similar picture. Dermagraphism was present. Pressure with a glass slide over each globular papule revealed a yellow nodule in the skin. Microscopic study revealed the change characteristic of lupus vulgaris.

DISCUSSION

DR. WILLIAMS: I must confess I would call that a bromide eruption. I cannot get away from that, even though the microscopic picture is that of lupus.

DR. WISE: The diagnosis in this patient has been definitely established with the microscope.

DR. ELLER: Most of us at the clinic thought at first that the patient had a bromide or an iodide eruption, and we were surprised when we studied the microscopic section and found a typical picture of tuberculosis.

DR. HIGHMAN: I did not think of bromide or iodide. It looks so much like tuberculosis that I thought of nothing else.

DERMATITIS MEDICAMENTOSA (SALICYLATE). Presented by DR. WILLIAMS.

The patient was previously presented before the Section on Dermatology of the New York Academy of Medicine, April 3, 1928, as erythema multiforme. Since then, it had been discovered that the patient had taken sodium salicylate for a sore throat, and the eruption appeared three weeks later and was increased by the administration of sodium salicylate.[1]

1. After the presentation at the New York Dermatological Society, the use of sodium salicylate was omitted and the eruption improved, but relapsed later without the use of any drug.

Book Reviews

THE BLOOD VESSELS OF THE HUMAN SKIN AND THEIR RESPONSES. By THOMAS LEWIS, M.D., F.R.S., Physician of the Staff of the Medical Research Council, and Physician of the University College Hospital. Pp. 322, with a large octavo. London: Shaw & Sons, Ltd., 1927.

This book is a monumental contribution to the physiology and anatomy of the circulation in the skin. It represents a series of investigations carried out for eleven years on behalf of the Medical Research Council. It shows a spirit in the interpretation of physiologic phenomena similar to that of Sir James MacKenzie in the study of clinical conditions, for the author says: "the chief motive which eventually led me to write this book * * * * was a desire to stimulate a wider study and teaching of human physiology; for knowledge relating to the healthy man forms the most manifest and abiding bond between physiology and medicine." Thus, the book is an illustration of the great value of the skin as a medium for studying physiology under normal conditions. It is a stimulating presentation of all the knowledge applying to physiologic and pathologic processes in the circulation of the skin. In it the author carries forward the frontier of our knowledge of this subject. The work is especially worthy of study by all who are interested in diseases of the skin.

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Joseph Grindon, President, 4500 Olive St., St. Louis.
C. Guy Lane, Secretary, 416 Marlborough St., Boston.
Place: San Francisco. Time: July 1-3, 1929.

SECTION ON DERMATOLOGY AND SYPHILOLOGY, SCIENTIFIC ASSEMBLY, AMERICAN MEDICAL ASSOCIATION

Jay Frank Schamburg, Chairman, 1402 Spruce St., Philadelphia.
William H. Guy, Secretary, Jenkins Arcade, Pittsburgh.
Place: Portland, Ore. Time: July 8-12, 1929.

BRITISH ASSOCIATION OF DERMATOLOGY AND SYPHILOLOGY (CANADIAN BRANCH)

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